



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

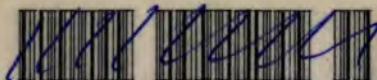
We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

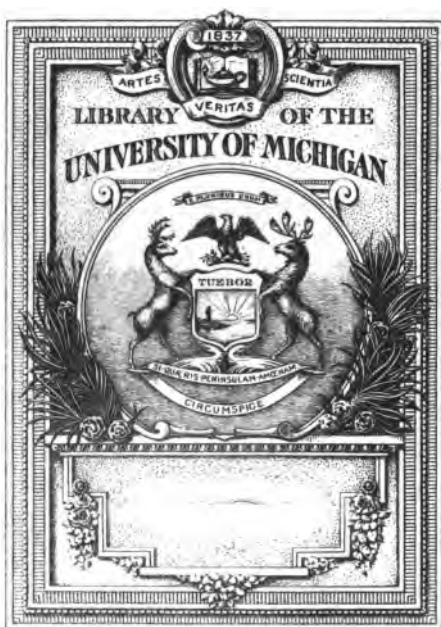
About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

BUHR A



a39015 01802314 6b



13

Ag. 943/44.

Number

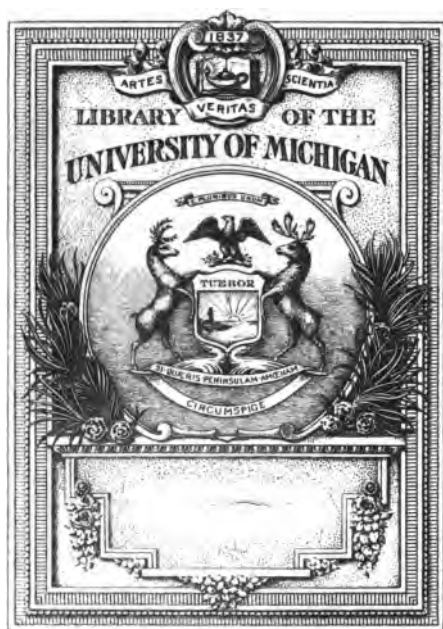
Library
PK

1

P57

V.1

pt. 3



I, 3
No. 943/44.

Natural Science

Library

PK

1

P57

V.1

pt. 3







THE
PHYTOLOGIST:
A
POPULAR
BOTANICAL MISCELLANY.

CONDUCTED BY
GEORGE LUXFORD, A.L.S., F.B.S.E.

VOLUME THE FIRST,
ILLUSTRATED BY UPWARDS OF EIGHTY FIGURES.



LONDON:
JOHN VAN VOORST, PATERNOSTER ROW.
M.DCCC.XLIV.

"The slightest piece of information which may tend to the advancement of the science [of Botany], we should thankfully receive. However trifling in itself, yet combined with other facts it may become important. Whatever relates to the determination of species, even in the lowest and seemingly least important of Nature's works, ought never to be neglected. He who determines with certainty a single species of moss, adds so far to the general stock of human knowledge." — SIR J. E. SMITH.

1326 404

compl. sets
Gattoch
6-25-29
19930

P R E F A C E .

THE PHYTOLOGIST owes its existence to the desire of recording and preserving FACTS, OBSERVATIONS and OPINIONS relating to Botany in general, but more especially to British Botany. Prior to its commencement *these* had no appropriate receptacle. There was no periodical to which they would be acceptable. For works of a general character, they were esteemed too dull : for those of high scientific pretensions they were supposed too trifling. By field-botanists alone were they considered worth preserving : to such the utility, the value of an unpretending monthly journal was most manifest ; and these field-botanists — these observers — these labourers in the delightful fields of botanical enquiry, have freely availed themselves of its pages : they have done all that was anticipated, and 'The Phytologist' has become the medium of their communications with each other and with the botanical public.

It has been a source of great pleasure to me to observe, from time to time, among such contributors, the honoured names of Forster, Woods, Borrer, Wilson, Boott, Taylor, Greville and Ralfs, — names familiar as household words to the ear of every botanist, — names that constantly occur in works treating of British plants. Neither must I omit to enumerate others, perhaps of a younger school, but already honorably known ; — as Mr. Spruce, the talented muscologist, Mr. Babington, Mr. Leighton, Dr. Balfour, Mr. Watson, Mr. Irvine, and Mr. Luxford, — all highly esteemed for their labours in the cause of British Botany, have lent their aid to 'The Phytologist.' To the last-named gentleman I am indebted, not only for those papers which bear his name, but also for numerous anonymous articles, and the

editorial management of the entire volume. And here I will take occasion to remark, that although 'The Phytologist' is published at my cost, and under my immediate control; and although I am in every respect responsible for anonymous articles; yet I have no claim whatever to the merit of such articles, since they have generally emanated from the pen of Mr. Luxford, whose name now stands in the title-page as the avowed editor.

It only remains for me to offer my best thanks to every subscriber and contributor, to all who promoted the welfare of my undertaking; but more especially to Mr. Luxford for his editorial labours, and to Mr. Dennes, Secretary to the Botanical Society of London, for the unremitting kindness and regularity with which he has furnished such able Reports of its proceedings.

EDWARD NEWMAN.

9, Devonshire St., Bishopsgate,
November 20, 1844.

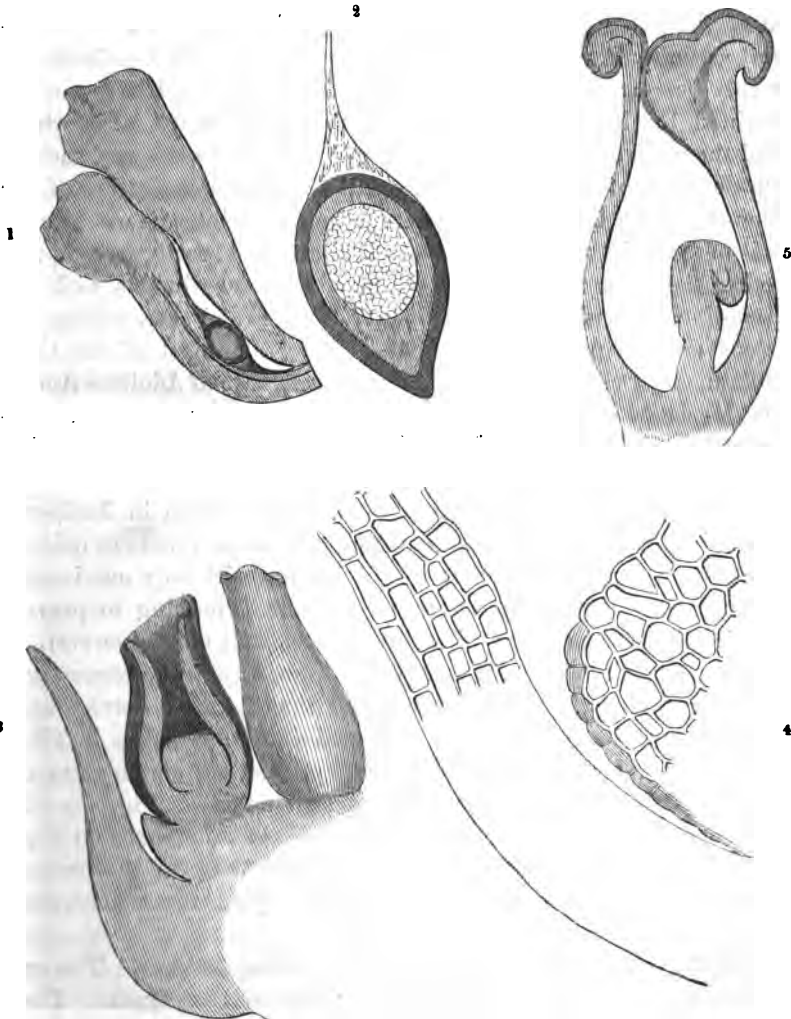
THE PHYTOLOGIST.

No. XXVI.

JULY, MDCCCXLIII.

PRICE 1s.

ART. CL. — *Researches in Embryogeny.* By W. WILSON, Esq.



1 and 2, Longitudinal sections of the ovule of *Pinus sylvestris*. 3, Longitudinal section of the ovule of *Juniperus communis*. 4, Section of the nucleus, and a portion of the integument of *Juniperus communis* (magnified 300 times). 5, Longitudinal section of the pistillum and ovule of *Berberis vulgaris*. All the figures are more or less magnified.

HAVING lately seen the articles on this subject by Schleiden, and by Mirbel and Spach, in the 'Annales des Sciences Naturelles,' published in April and May, 1839, it has been my wish to examine for myself how far the former of these writers had any foundation for his opinions. Hitherto I have not met with any evidence in favour of the doctrine which teaches that the vegetable embryo consists of a portion of the pollen-tube which has penetrated the nucleus. The account given by Corda (see Lindley's 'Introduction,' ed. 2, p. 550) may possibly be correct as applied to the spruce fir, which I have not yet examined, but it can scarcely be applicable to *Pinus sylvestris*, where I find the nucleus surrounded by three different integuments, each of them destitute of a foramen; so that all direct communication of the pollen-tube with the nucleus appears to be impossible: it would even admit of a doubt whether the ovule in this case is really naked, and whether there be not a carpellary membrane (continuous with the stigma-like expansion at the summit of the ovule) surrounding the nucleus and its proper integuments. The innermost of the three membranes is a very thin pellicle (*sac of the embryo* of Adolphe Brongniart), scarcely if at all attached to the surrounding parts. A longitudinal section of the ovule is given at fig. 2 (p. 625). The action of the pollen has not yet been observed.

A genuine example of a naked ovule may be seen in *Juniperus communis*. Here the nucleus consists of a roundish mass of uniform cellular tissue, not enclosed in a pellicle, and with only one integument, which is open at the top; so that there is nothing to prevent the pollen-tube from penetrating the nucleus. It must, however, be remarked, that the nucleus has no ready-formed cavity (*embryostome*) for the reception of the pollen-tube, and thus far the observations of Corda seem to be inapplicable. The like structure exists in *Thuja occidentalis*. Unfortunately, I cannot pursue the enquiry; as the male plants of both are inaccessible to me at this time. Fig. 3 (p. 625) represents a longitudinal section of the ovule of *Juniperus*; at fig. 4 is shown another actual section (exceedingly thin) of the nucleus, with a portion of the integument, carefully copied from nature, magnified about 300 times.

In *Berberis vulgaris* there are some interesting features. The ovarium is a cavity, imperfectly closed at the top by the stigma. There is no proper style, and no central stigmatic tissue; so that if any pollen-tubes are formed, they must pass at once into the ovarium, and into the foramen of the ovule: but it is not yet ascertained that any

pollen-tubes are produced.* When the pollen-grains are immersed in water, they speedily burst and discharge the fovilla from their sides. At fig. 5 (p. 625) is shown a longitudinal section of the pistillum, with one of the ovules at the base of the ovarium. It will be seen that the stigmatic surface is continued into the cavity of the ovarium, on that side which is most swollen.

In this plant the elastic valve of the anther fulfils an important function, which seems to have been overlooked. The stamen is not happily represented in Lindley's 'Introduction,' ed. 2, pl. 4, fig. 11. It is placed behind the filament, and is lower than the stigma; but the valve, on turning up, also twists round towards the stigma, its cavity being filled with nearly all the pollen, which is thus brought to a level with the stigma, ready to be applied to its surface the instant that the filament is excited below.

W. WILSON.

Warrington, May 31, 1843.

ART. CLI. — *A History of the British Equiseta.* By EDWARD NEWMAN. (Continued from p. 594).

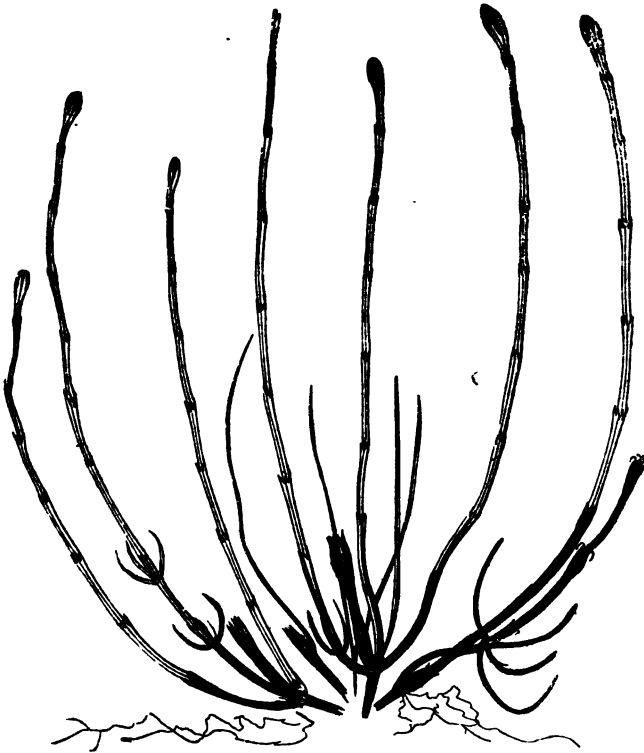
EQUISETUM PALUSTRE, VAR. NUDUM, (Gibson, MSS.)

THIS form of the plant is widely but sparingly distributed. I am indebted to Miss Griffiths for specimens from Braunton Burroughs in Devonshire, to Dr. Greville for others from the sands of Barry, and to Mr. S. Gibson for the loan of others from Aldingham, Yorkshire, and Broadbank, Lancashire; to these Mr. Gibson has attached the MS. name of "*var. nudum.*"

This plant, as will be seen from the figure (p. 628), differs principally from the normal form in being without branches, or nearly so, the occurrence of a few scattered ones being occasional only, and constituting the exception rather than the rule. I can scarcely wonder that botanists should have referred such a plant to the preceding rather than the present species: this is the case in all the herbaria I have examined, excepting Mr. Gibson's, which came into my hands just as the present paper was going to press, but in time to incorporate a notice of it, and adopt the proposed name.

* On further examination it appears that the pollen-grains do produce tubes; and that the stigmatic fluid is of a resinous nature, and does not mix with water.—W. W. June 16, 1843.

The specimens vary considerably in size as well as general appearance: those from Scotland, Yorkshire and Lancashire are very small, the stems not attaining on the average more than a length of two inches: those from Devonshire are somewhat larger, the figure represents a Devonshire specimen of the natural size, and I have seen others of a still more luxuriant growth. Some of the examples are erect, others prostrate, and those which grow on sand-banks have the roots densely fibrous.



Equisetum palustre, var. *nudum*, Gibson, MS.

After a careful examination of this plant I am unable to find any characters whereby to distinguish it as a species from *E. palustre*:—the root, stem, sheaths and catkins seeming to me identical with those of the species to which I have referred it.

I cannot conclude my account of this species without thanking those botanists who have kindly given me their opinions on the nomenclature of the British species of *Equisetum*: the aggregate of these opinions is in favour of the changes I have proposed. I observe in Dr. Diedrich's 'Deutschlands Kryptogamische Gewächse,' published since my notes on the Linnean herbarium, that the author has adopted the nomenclature given below.

E. limosum, Diedrich, = the polystachion variety of *E. palustre*, Linneus? A doubt may arise whether the polystachion variety of *palustre*, Linn., or *fluviatile*, Linn., be intended.

E. fluviatile, Diedrich, = *E. fluviatile*, Linn. and *E. limosum*, Sm.

E. Telmateja, Diedrich, = *E. Telmateja*, Ehrh., *E. eburneum*, Roth, and *E. fluviatile*, Smith.

E. umbrosum, Diedrich, = *E. umbrosum*, Meyer, and *E. Drummondii*, Hooker.

The other names correspond with those in Smith's 'English Flora.' As Dr. Diedrich makes no reference to my observations on this subject, and indeed could scarcely, by any possibility, have seen them, I think his publication may be received as further testimony in favour of the changes in question, and it certainly confirms my intention of adopting them, notwithstanding the expressed disapprobation of two eminent botanists, Mr. Watson (*Phytol.* 587), and Mr. Babington, (*Manual*, 379).^{*} These gentlemen are themselves authorities in nomenclature, and their decisions are received with a respect to which mine are not entitled; I therefore use no judgment of my own, knowing that it would not be received as authority: but having shown the species described by Linneus under the name of *fluviatile*, that described by Ehrhart under the name *Telmateja*, and that described by Willdenow under the name *umbrosum*; and finding no descriptions prior to these since the establishment of the binominal nomenclature; I revert to the names given by these authors as *a matter of course*, not one in which I have any right to exercise a judgment or opinion of my own. I may however add, that Mr. Watson's remarks on the *habitats* of *E. fluviatile*, *Smith*, somewhat startle me: the inference to be drawn from half-a-dozen letters now before me, is, that the plant in question not only *does* not but *cannot* grow in water; but as none of these are intended for publication, I forbear naming the writers. In the confusion of names is it not possible that there is also a confu-

^{*} Wahlenburg, in his 'Flora Lapponica' (1812), clearly points out Smith's error.—*Fl. Lap.* 298.

sion of plants, and that Mr. Watson's fluviatile and my fluviatile are one and the same plant, and that we both adopt the Linnean nomenclature?

In my former observations I made no allusion to the *Equisetum Drummondii* of Sir W. J. Hooker, because no specimen of this plant exists in the Linnean herbarium, to which alone my remarks were confined: but the same species appears to have been long known as a native of Europe, by the name of *Equisetum umbrosum*. The name was for some time MS. only, and is given as Meyer's MS. name. However, in 1809, the species was regularly characterized by Willdenow, in his 'Enumeratio,' p. 1065; and again by the same author in his 'Species Plantarum' (1810), v. 3: and it also appears with a minute description in Vaucher's 'Monographie des Prêles,' published in the first volume of the 'Memoires de la Société de Physique &c. de Genève.' The description is accompanied by very exact figures of the fertile and barren fronds, and of a branched frond surmounted by a catkin, a very common but not constant form of the species.* In all these instances the name of umbrosum is given without any other synonyme, or any implied doubt as to its correctness.

EDWARD NEWMAN.

(To be continued).

ART. CLII.—*A Flora of the neighbourhood of Sandringham, Norfolk.*

By JAMES E. MOXON, Esq.

(Continued from p. 601).

<i>Corylus Avellana</i> . Hedges, frequent.	<i>Salix cinerea, aquatica, oleifolia</i> . Comn.
<i>Fagus sylvatica</i> . Hedges, occasionally.	— <i>caprea</i> . Wolferton wood, common.
<i>Quercus Robur</i> . Common.	— <i>viminialis</i> . Frequent.
<i>Betula alba</i> . Frequent.	— <i>alba</i> . Not uncommon.
<i>Alnus glutinosa</i> . Rather uncommon.	<i>Populus alba, tremula & nigra</i> . Not unc.
<i>Urtica urens</i> . Occasionally.	<i>Callitriche verna</i> . Watery places, pools, &c. abundant.
— <i>dioica</i> . Plentiful.	<i>Salicornia procumbens</i> . Wolferton marsh, beyond sea-bank, occasionally.
<i>Parietaria officinalis</i> . Old walls, frequent.	— <i>herbacea</i> . Ditto, abundant.
<i>Humulus Lupulus</i> . Hedges, occasionally.	<i>Atriplex portulacoides</i> . Ditto, abundant.
<i>Ulmus campestris</i> . Not frequent.	— <i>patula</i> and <i>angustifolia</i> . Waste ground, frequent.
<i>Myrica Gale</i> . Dersingham and Rising heaths &c. abundant.	— <i>laciniata, littoralis</i> . Wolferton sea-bank, common.
<i>Salix argentea</i> . Dersingham heath, local.	
— <i>repens, fusca, prostrata</i> . Heaths &c. common.	

* See Vaucher's Monographie, plate iv. figs. 1—4.

- Chenopodium Bonus-Henricus*. Dersingham common, not uncommon.
 ——— *album*. Abundant.
 ——— *maritimum*. Wolferton salt marsh, common.
Rumex obtusifolius. Abundant.
 ——— *sanguineus*. Ingoldsthorpe comn.
 ——— *Hydrolapathum*. Ditches, Rising common.
 ——— *Acetosa*. Meadows &c. frequent.
 ——— *Acetosella*. Dry places, common.
Polygonum amphibium. Ditches, Rising common.
 ——— *Persicaria, Lapathifolium*. Fr.
 ——— *Hydropiper*. Rather rare.
 ——— *Aviculare*. Abundant.
 ——— *Fagopyrum*. Fir-wood enclosure, Sandringham.
 ——— *Convolvulus*. Frequent.
Scleranthus annuus. Frequent.
 ——— *perennis*. Sandringham heath, near the church; Wolferton beach.
Erica Tetralix. Moist places, abundant.
 ——— *cinerea*. Dry heaths, very abundt.
Calluna vulgaris. Ditto.
Vaccinium Oxyccocos. Dersingham, Babingley and West Newton; Rising common &c., abundant.
Primula vulgaris. Rather uncommon.
 ——— *veris*. Not so frequent as the preceding.
Hottonia palustris. Ditches, Rising com.
Lysimachia vulgaris. Ditch-banks, Rising common.
Anagallis arvensis. Sandy fields, common.
 ——— *cerulea*. Cultivated fields at Sandringham, very rare.
 ——— *tenella*. Fens and watery hths. abundant.
Centunculus minimus. Rising common, local.
Glaux maritima. Wolferton salt-marsh, frequent.
Samolus Valerandi. Rising common, not unfrequent.
Ilex Aquifolium. Hedges, rare.
Cuscuta Epithymum. Dersingham and West Newton heaths, occasionally.
- Convolvulus arvensis*. Common.
 ——— *sepium*. Osier beds, hedges &c. frequent.
Campanula rotundifolia. Heaths &c. abt.
 ——— *Trachelium*. Castle Rising, also at Bawsey.
Jasione montana. Dersingham common.
Lonicera Periclymenum. Wds. and hedges frequent.
Sambucus nigra. Frequent.
Viburnum Opulus. Wolferton and Sedgford woods.
Sherardia arvensis. Dersingham comn. fr.
Galium cruciatum. Wolferton, frequent.
 ——— *palustre*. Watery places, frequent.
 ——— *saxatile*. Heathy ground, abndt.
 ——— *uliginosum*. Watery places, comn.
 ——— *verum*. Heathy ground, ext. com.
 ——— *Mollugo*. Bushy heaths, occasly.
 ——— *Aparine*. Hedges, common.
Eupatorium cannabinum. Babingley, Snettisham &c. common.
Tussilago Farfara. Frequent.
Petasites vulgaris. Rising common, also at Sedgford, of an immense size.
Aster Tripolium. Wolferton salt-marsh, common.
Erigeron acris. Shernbourne and Fring, sparingly.
Bellis perennis. Abndnt. almost everywh.
Solidago Virgaurea. Dersingham heath, abundant.
Inula dysenterica. Wolferton, Babingley, &c. common.
Anthemis Cotula. Common.
 ——— *arvensis*. Frequent.
Achillea Ptarmica. Common.
 ——— *Millefolium*. Abundant.
Matricaria Chamomilla. Frequent.
Pyrethrum Parthenium. Ditto.
Chrysanthemum Leucanthemum. Ditto.
 ——— *segetum*. Wolferton, not uncommon.
Artemisia maritima. Wolferton sea-bank, frequent.
 ——— *Abinthium* and *vulgaris*. Freq.
Gnaphalium uliginosum, minimum and *germanicum*. Common.

Senecio vulgaris. Very common.
 — *syriacus*. Near Sandringham chalk-pit, plentifully.
 — *Jacobaea*. Heath, roadsides, &c. abundant.
 — *aquaticus*. Roydon fen, common.
Carlina vulgaris. Sandringham chalk pit, common.
Centaurea nigra. Very frequent.
 — *Cyanus*. Cornfields &c. freqt.
 — *Scabiosa*. Frequent.
Cnicus lanceolatus. Ditto.
 — *palustris*. Common.
 — *arvensis*. Abundant.
 — *pratensis*. Dersingham heath.
 — *acaulis*. Sandringham chalk-pit, plentifully.
Onopordum Acanthium. Near Sandringham chalk-pit, rather sparingly.
Carduus nutans and *acanthoides*. Comn.
 — *Marianus*. West Newton, 1838, a single plant.
Arctium Lappa. Common.
Lapsana communis. Ditto.
Cichorium Intybus. Castle Rising, &c fr.
Leontodon Taraxacum. Abundant.
Apargia hispida. Ditto.
 — *Taraxaci*. Sandringham chalk-pit, plentifully.
Tragopogon pratensis. Meadows &c. freq.
Picris hieracioides. Castle Rising; also at Reffley wood; not uncommon.
Crepis virens. Common.
Sonchus arvensis. Wolferton wood &c.
 — *oleraceus*. Very common.
Hieracium Pilosella. Sandy banks, very common.
Dipsacus sylvestris. Hedges, frequent.
Scabiosa succisa. Common.
 — *arvensis*. Roadsides &c. comn.
 — *columbaria*. Sandringham chalk-pit, 1842; Sedgford.
Valeriana rubra. Walls of Sandringham park, not wild.
 — *dioica*. Back of Wade-moor wood, Sandringham.
 — *officinalis*. Reffley and Wolferton woods, plentiful.

Plantago major and *media*. Frequent.
 — *lanceolata*. Common.
 — *maritima*. Wolferton salt-marsh, common.
 — *Coronopus*. Sandringham, freq.
Statice Armeria. Wolferton salt-m. abdt.
 — *Limonium*. Ditto, common.
Echium vulgare. Sandringham, Dersingham, &c. very common. In 1838 this plant covered half an acre of ground in one locality, presenting to the eye a mass of the most vivid blue.
Lithospermum arvense. Fields near Sandringham chalk-pit; sparingly.
Myosotis palustris and *caespitosa*. Comn.
 — *arvensis*. Sandy places, common.
Symphytum officinale. Common.
Cynoglossum officinale. Hedges &c. com.
Mentha hirsuta. Common.
Lycopus europæus. Ditto.
Salvia verbenaca. Sandringham, West Newton &c. frequent.
Thymus Serpyllum. Very common.
 — *Acinos*. Frequent.
Prunella vulgaris. Very common.
Scutellaria galericulata. Common.
Nepeta Cataria. Hedges, frequent.
Glechoma hederacea. Common.
Lamium album. Common.
 — *purpureum*. Very common.
 — *amplexicaule*. Occasionally.
Galeobdolon luteum. Wolferton wood.
Galeopsis Tetrakit. Common.
 — *versicolor*. Wolferton heath.
Stachys sylvatica and *palustris*. Common.
Betonica officinalis. Frequent.
Marrubium vulgare. Sandringham, frequent; also at Hunstanton.
Ballota nigra. Common.
Teucrium Scorodonia. Heathy sandy places, very abundant.
Ajuga reptans. Moist shady places freqt.
Verbena officinalis. Dersingham common, very frequent.
Utricularia vulgaris. Ditches near the river, Rising common, abundant.
Pinguicula vulgaris. Wade moor; Dersingham & Ingoldsthorpe fens, co.

- Orobanche minor*. Clover-fields, Babingley common.
Verbasum Thapsus. Roadsides, old walls &c. frequent.
 — *nigrum*. Frequent.
 — *pulverulentum*. About Ingoldsthorpe and Snettisham, common.
Scrophularia nodosa and *aquatica*. Freq.
Antirrhinum Cymbalaria. Occasionally.
 — *Linaria*. Frequent.
Digitalis purpurea. Occasionally.
Veronica Beccabunga. Common.
 — *Anagallis*. Wade moor.
 — *scutellata*. Babingley fen, abdt.
 — *officinalis*. Heaths, abundant.
 — *Chamædrys*. Heaths and shady places, abundant.
 — *serpyllifolia*. Frequent.
 — *montana*. Sandringham heath, occasionally.
 — *agrestis*. Cultivated ground, co.
 — *arvensis*. Walls of Sandringham church-yard &c. abundant.
 — *hederifolia*. Frequent.
Euphrasia officinalis. Very common.
Bartsia Odontites. Dersingham heath, co.
Pedicularis palustris. Dersingham and Roydon fens, common.
 — *sylvatica*. West Newton heath, frequent.
Rhinanthus Crista-galli. Frequent.
Solanum Dulcamara and *nigrum*. Freqnt.
Hyoscyamus niger. Roadsides: Dersingham, Sandringham, West Newton &c. occasionally.
Erythraea Centaurium. Sandy ground, frequent.
Menyanthes trifoliata. Dersingham and Roydon heaths, common.
Ligustrum vulgare. Hedges, frequent.
Fraxinus excelsior. Ditto, common.
Pinus sylvestris. West Newton heath, common, young plants, self-sown.
Galanthus nivalis. Sandringham park, abundant, covering about a quarter of an acre; if not wild, at least completely naturalized.
Iris Pseudacorus. Ditches &c. plentiful.
- Orchis bifolia*. Dersingham heath, Roydon fen, common.
 — *Morio*. Moist grassy places, com.
 — *latifolia*. Frequent.
 — *maculata*. Common.
Gymnadenia conopsea. Wade moor, 1842, abundant.
Epipactis palustris. Ditto, ditto.
Listera ovata. Ditto, common.
Allium ursinum. Wolferton wood, com.
Scilla nutans. Wolferton wood &c. abndt.
Narthecium ossifragum. Fens; Dersingham, West Newton, &c. abundant.
Convallaria majalis. Wolferton wood, abt.
Ruscus aculeatus. Sandringham woods, not common.
Butomus umbellatus. Rising common, plentiful.
Sagittaria Sagittifolia. Ditto, common.
Alisma Plantago. Common.
 — *ranunculoides*. Dersingham, Ingoldsthorpe, Rising & Roydon fens, common.
Juncus conglomeratus, *effusus*, *squarrosus*, *bufonius*, *lampocarpus*. Common.
 — *maritimus*. Wolferton salt marshes, sparingly.
 — *uliginosus*. Frequent.
 — *acutiflorus*. Very common.
 — *obtusiflorus*. Ditches, Ingoldsthorpe common, abundantly.
Luzula pilosa. Wolferton wood, frequent.
 — *campestris*. Heaths, dry meadows and woods, abundantly.
 — *congesta*. W. Newton fen, sprngly.
Tamus communis. Hedges and woods, occasionally.
Arum maculatum. Common.
Typha latifolia. Ditches, ponds, &c. com.
Sparganium ramosum. Ditches, Rising common &c. common.
 — *simplex*. Ditches near the river, Rising common, abundantly.
Ruppia maritima. Ditches, Wolferton marsh, abundant.
Potamogeton natans. Fens, abundant.
 — *gramineum*. Ditches, Wolferton marsh and Rising common.

- Triglochin palustre*. Frequent.
 ——— *maritimum*. Wolferton salt-marsh, frequent.
Lemna minor. Pools, ditches &c. abndnt.
Phalaris arundinacea. Ditches &c. com.
Holcus lanatus. Meadows &c. very com.
Anthoxanthum odoratum. Pastures, com.
Alopecurus pratensis. Pastures, abndnt.
 ——— *geniculatus*. Moist mdows. co.
Phleum pratense. Pastures &c. abundant.
 ——— *arenarium*. Snettisham beach, co.
Agrostis Spica-venti. Cornfields, occas.
 ——— *canina*. Oakwood, West Newton fen.
 ——— *vulgaris*. Dry places, abundant everywhere.
 ——— *alba*. Oakwood, W. Newton fen.
Aira cristata. Walls of Sandringham churchyard.
 ——— *aquatica*. Frequent.
 ——— *caespitosa*. Wolferton wood &c. co.
 ——— *præcox*. Common.
Avena fatua. Dersingham hth., sparingly.
 ——— *pratensis*. Pastures and bushy places, common.
 ——— *flavescens*. Pastures &c. common.
Hordeum murinum. Roadsides, frequent.
 ——— *maritimum*. Wolferton salt-marsh, common.
Lolium perenne. Meadows, pastures and seashore, abundant.
Triticum junceum. Snettisham, frequent, also at Hunstanton.
 ——— *repens*. Common.
Poa pratensis. Meadows, common.
 ——— *annua*. Very abundant.
Briza media. Wade moor, Sandringham chalk-pit, plentiful.
Melica cerulea. Bogs, plentiful.
Glyceria aquatica. Ditches, common.
 ——— *fluitans*. Common.
 ——— *rigida*. Sandy ground, walls of Sandringham churchyard, common.
- Glyceria procumbens*. Snettisham beach, very common.
Triodia decumbens. Dersingham heath, frequent.
Dactylis glomerata. Common.
Cynosurus cristatus. Very common.
Festuca loliacea. Meadows &c. frequent.
 ——— *pratensis*. Common.
 ——— *elatior*. Sandringham chalk-pit, sparingly.
 ——— *syriaca*. Hedges and woods, co.
Bromus mollis. Pastures &c. very comn.
 ——— *asper*. Hedges, occasionally.
 ——— *sterilis*. Fields and waysides, co.
Arundo Phragmites. Woods and watery places, abundant. [ton fen.
 ——— *Epigejos*. Oakwood, West New-
Eriophorum vaginatum. West Newton fen, rare.
 ——— *polystachion*. West Newton and Dersingham fens, occasionally.
 ——— *angustifolium*. Fens, very common.
Scirpus caespitosus. Dersingham fen, freq.
 ——— *maritimus*. Wolferton salt-marshes &c., abundant.
 ——— *setaceus*. Rising common, locally.
 ——— *glaucus*. Wolferton salt-marshes, sparingly.
Eleocharis palustris. Not common.
Rhynchospora alba. Dersingham fen, co.
Sclænus nigricans. Ditto, ditto.
Carex remota. Ditch-banks, Dersingham, occasionally.
 ——— *arenaria*. Near Sandringham chalk-pit, abundantly.
 ——— *pilulifera*. Rising common, freqnt.
 ——— *flava*. Frequent.
 ——— *præcox*, *panicea* and *riparia*. Common.
 ——— *ampullacea*. West Newton fen, Rising common, frequent.

I must here remark, that owing to want of opportunity, the genera *Salix* and *Carex* have not been so fully investigated as might be wished.

Species collected beyond the limits of the above Flora.

- Nuphar lutea*. Ditches between Lynn and Downham, common.
- Sanicula europæa*. Reffley wood, near Lynn.
- Eryngium maritimum*. Hunstanton sea-shore.
- Sium latifolium*. Ditches, marsh-land, abundant.
- Ænanthe Phellandrium*. Ditto, ditto.
- Smyrnium Olusatrum*. Lanes and hedges at Hunstanton, frequent.
- Meum Faniculum*. Hunstanton, Sedgeford &c. common.
- Hippuris vulgaris*. River Nar, back of the Priory, Castle Acre, common.
- Cheiranthus fruticosus*. Ruins of Castle Acre Priory, abundant.
- Cakile maritima*. Hunstanton sea-shore, common.
- Helianthemum vulgare*. Hunstanton chalk cliffs.
- Althæa officinalis*. Ditch banks, marsh land near the sea.
- Arenaria peploides*. Hunstanton sea-shore, common.
- Rosa arvensis*. Hedges nr. Sutton bridge, frequent.
- Sedum reflexum*. Walls at Castle Acre, common.
- Sempervivum tectorum*. Cottage roofs nr. Wisbeach, frequent.
- Fagus Castanea*. Hedges near Liteham.
- Saponaria officinalis*. Wet hedges at Pentney, near Gayton, sparingly.
- Salsola Kali*. Hunstanton sea-shore, co.
- Daphne Laureola*. Sedgeford wood.
- Polygonum acetosum*. Sutton bridge, sparingly.
- *maritimum*. Hunstanton sea-shore, local.
- Convolvulus Soldanella*. Ditto, ditto.
- Apargia hirta*. Sutton bridge, frequent.
- Origanum vulgare*. Chalky banks, comn.
- Thymus Calamintha*. Castle hill, Castle Acre, abundant.
- *Nepeta*. Chalky banks, Sedgeford, near Snettisham, not uncommon.
- Atropa Belladonna*. Field-banks at Reffley wood, near Lynn, occasionally.
- Erythræa pulchella*. Sutton bridge, comn.
- Villarsia nymphæoides*. River and ditches between Lynn and Downham, com.
- Vinca minor*. Sedgeford.
- Typha angustifolia*. Sedgeford wood, com.
- Poa compressa*. Walls of Castle Acre Priory, &c. common.
- Arundo arenaria*. Sea-sh. Hunstanton, co.
- Elymus arenarius*. Ditto, frequent.

JAMES E. MOXON.

Leyton, Essex, December, 15, 1842.

ART. CLIII. — Notice of Books relating to British Botany.

1. *The British Flora: in Two Volumes. Vol. I., containing the Phænogamous or Flowering Plants and the Ferns.* By SIR WILLIAM JACKSON HOOKER, K.H., LL.D., F.A.S. & L.S., ETC. ETC. *The Fifth Edition, with Additions and Corrections, and numerous Figures illustrative of the Umbelliferous Plants, the Composite Plants, the Grasses and the Ferns.* London: Longman & Co. 1842. 8vo.
2. *The Geographical Distribution of British Plants.* By HEWETT COTTRELL WATSON. *Third Edition, Part 1.* London: printed for the Author. 1843. 8vo.

3. *Manual of British Botany, containing the Flowering Plants and Ferns, arranged according to the Natural Orders.* By CHARLES C. BABINGTON, M.A., F.L.S., F.G.S., ETC., ETC. London: Van Voorst. 1843. 12mo.

IN our last number we briefly mentioned the appearance of two of the works whose titles stand at the head of this article: in the present notice we believe we cannot do better than combine with these a third, and to class them all under one general head; since the geographical distribution of plants and their correct discrimination are branches of botanical science as inseparable as they are important and interesting. A botanist is always anxious to ascertain not only the name of a plant and its place in the system; he also wishes to make himself acquainted with its native country, its general geographical range, and every circumstance connected with its habitats and localities, together with the various conditions of climate and altitude under which it occurs. Such information relative to our native species will be conveyed in Mr. Watson's treatise on 'The Geographical Distribution of British Plants,' of which the first part, containing the Ranunculaceæ, Nymphæaceæ and Papaveraceæ, is now before us. The author has been for many years engaged on this subject; the two treatises previously printed by him having been but the precursors of the present admirable work, wherein his views are more fully developed, and the results of his researches stated in a more extended form. Its scope and design will be best shown by extracts from the "Preliminary Explanations."

"The first object to be accomplished in the following pages, is that of bringing together, under a methodical form, those facts which are calculated to assist in showing both the general range and local habitats of such plants as are reputedly indigenous, or pretty well naturalised, in the island of Great Britain and its islets immediately adjacent, from Scilly to Shetland."—p. 2.

The plants of Ireland are necessarily excluded, there not being on record sufficient data to enable the author to illustrate the geographical relations of the flora of that country. The Channel Isles are in like manner excluded, because they are considered to belong more properly to France than to this country: "all their indigenous plants being apparently common to those islets with France, while several of them are unknown among the native plants of England."

"After bringing together such data as may be found conveniently within the author's reach, for exhibiting the ascertained distribution of each species considered by itself, it will then become comparatively easy to add illustrative maps, statistical tables, and more comprehensive and generalised views respecting those various physical conditions which are apparently most influential in determining the present distribution

of the plants. To this end, it is unquestionable that copious and accurate details are necessary in the first place, and before the aid of maps and tables can be called in for the sake of explicitness and precision in conveying to others the knowledge so acquired. Interesting as it may be in itself to many minds, the public value of that knowledge must be measured by the degree in which it can tend to elucidate the causes of vegetable distribution; since it is only by first ascertaining those causes that we can reasonably expect to render the knowledge beneficially applicable to human affairs. But much time may yet elapse before any such application of knowledge can be made.

"Notwithstanding the long-accumulated stores of individual facts relating to the indigenous plants of this country, and to the particular localities for the rarer species, as well as many full lists of the plants of single counties or other definite tracts; and notwithstanding the lively impulse which has of late years been given to such enquiries, we are still sadly short of accurately observed facts that bear directly upon the ultimate object here proposed. The facts not having been observed or recorded with reference to any such end, they have consequently been, so far as that end is concerned, too often only inadequately observed and recorded; the most valuable or interesting circumstances having been either noticed insufficiently or wholly passed over."—p. 3.

We regret that we cannot follow the author into all the details of the plan of the work, which, however, we trust will be rendered intelligible by such brief explanatory remarks as our limits will allow us to give. First as to the botanical arrangement:—

"The so-called Natural System of arranging plants determines the order in which they will be spoken of in these volumes, and which will be very nearly that of Decandolle's *Prodromus*. Nature's own system of practical arrangement is clearly a geographical one; but for the convenience of technical botanists, it has been deemed more advisable to follow the abstract system, by which plants are supposed to be united into groups according to general resemblances."—p. 5.

The nomenclature is that of Hooker's '*British Flora*,' fifth edition, with occasional references for synonyms to the works of Smith, Gray, Withering and Hudson. "No species will be introduced into this work as indigenous, unless the author has seen specimens alleged to be of British growth." As examples of "the difficulty of tracing any abrupt line of separation between the two classes of native and naturalised plants," the six following trees are mentioned;—the birch, the beech, lime, sycamore, chesnut and walnut: the first of these being "truly indigenous," and the last "certainly introduced." The author asks, "between which two, among the remaining four intermediately placed names, must we draw the line that divides the naturalised from the native species?"—and remarks that it would be difficult to obtain a unanimous decision on this question: the difficulty would consequently be greater in the case of the common plants of our gardens, corn-fields, road-sides and sea-shores.

At the head of each species are two diagrams; one being "a miniature map of Britain, divided into eighteen districts," which are numbered in regular order from south to north; the other exhibits "the absolute and comparative heights attained by the highest hills of the respective districts." By the omission of the figures from the spaces in the first diagram corresponding with districts in which the species has not been observed, a pretty exact idea of its ascertained range is given; the same course is pursued in the diagram of altitudes. These diagrams are intended as index-maps to others on a larger scale.

Immediately under these diagrams are the following details. 1. The name of the species, with synonyms, if any. 2. An enumeration of the districts in which the species has been ascertained to grow. 3. An enumeration of such of twenty local Floras and thirty catalogues in which the species is mentioned. 4. Enumeration of localities from which specimens of the species are preserved in the author's herbarium. 5. Uncertain localities. 6. Distribution of the species in Britain. 7. General distribution. 8. Localities ranged under the various districts, collected from different sources.

We regret exceedingly that we cannot give copious extracts from the author's highly interesting remarks on the general distribution of the plants belonging to the three natural orders treated on in the present part: but with two more quotations we must conclude.

"Ranunculaceous plants are very widely distributed over the surface of the globe. They were found—in the typical form of the order, the genus *Ranunculus*—on all the arctic and polar coasts visited by Sir Edward Parry and other northern voyagers; even under the highest latitudes attained, as in Melville Island and at the northern extremity of Spitzbergen. They are still to be seen at the contrary extremes both of the old and new worlds, about the Cape of Good Hope and the Straits of Magellan; and they have also been gathered on the islands of the Southern Pacific, in New Holland, Van Dieman's Land, New Zealand, &c. Between these remote positions representatives of the order may be found in every part of the world, numerous in cold and temperate climates, but much more sparingly scattered over intertropical countries. Within and about the tropics, the plants of this order are chiefly seen on the mountains, although not invariably so."—p. 22.

In Steudel's *Nomenclator* are enumerated about 78,000 species of phanerogamous plants; of these 830 species, or about a 94th part of the whole number, are Ranunculaceæ. Mr. Watson thinks that this proportion may possibly be too high, in consequence of "the species of this order being better known than are those of several other orders prevalent within the tropics, or in the southern hemisphere." The proportion relatively to other flowering plants, is highest in high northern latitudes, but the greatest absolute number of species is found in the more temperate latitudes of the northern hemisphere. In

Britain the Ranunculaceæ constitute about a 48th part of the whole phanerogamic flora.

“The beautiful plants which are included by systematic botanists under the order of Nymphæaceous plants, and are sufficiently familiar to most persons under their common name of Water-lilies, are distributed less generally over the world than the former order, that of Ranunculaceous plants, or than the succeeding one, consisting of the Poppies, and allied genera. Yet, looking to the small number of distinct species comprehended in it, the present order may still be said to have a wide distribution. Being mostly large aquatic plants, adapted to grow in lakes and the less rapid rivers, the species of Nymphæaceæ are the ornaments of continental countries and low places; and are usually banished from islands and elevated mountains, as well as from very cold latitudes whose waters remain frozen during a large part of the year. Hilly or undulated countries, however, whose streams are converted into lakes or lake-like rivers on their low plains and in their valleys, may be considered favourable for the support of water-lilies; and we consequently find that our own insular position does not prevent Nymphæaceæ constituting quite as large a proportion of the indigenous flora of Britain, as is ordinarily the case with the floras of continental countries.”—p. 174.

We have stated that this work is printed for private distribution only; it will appear from time to time as the materials may become ready, and is offered to those botanical friends who have assisted the author in his investigations on that department of botanical science to which it relates. The author has adopted this course from an unwillingness to give such a pledge for the completion of the whole, as would be implied by the publication of a part, of a work which must necessarily run to so voluminous an extent. Whilst we cannot but respect the honourable feeling which prompted this course, and admire the liberality with which it has been carried out, we must also regret that such a store of valuable information on this exceedingly interesting branch of the science, should not be rendered accessible to every student of the Botany of this country.

Let us now proceed to make a few observations on the two other publications the titles of which we have given above. We have but little doubt that on the first announcement of Mr. Babington's intention to add another to the numerous works on British Botany already existing, there was a feeling in the minds of many botanists that such an addition to their libraries was not required, or, at least, that so much having been effected in advancing our knowledge of British plants, a new Flora must necessarily be no more than a compilation. But that a new Flora was not uncalled for at the present time, and that it was not impossible for such a work to be something more than a mere compilation, will, we trust, be rendered evident by a hasty

glance at the previously published general Floras of this country, commencing with the *magnus opus* of Sir J. E. Smith, in 1828.*

Although arranged according to what it has lately been the fashion to disparage by the appellation of an antiquated and useless system, the 'English Flora' will never be superseded as a work of standard authority on the botanical productions of Great Britain. Whatever may be its faults, they are doubtless attributable to the state of Botany in England at the period when it was written, and are infinitely outnumbered by its merits, which are its own, and have been justly acknowledged by all subsequent writers on Botany. The appearance of a work of such high authority, in the English language, gave a new impulse to the study of British plants, and laid the foundation for the more exact discrimination of our native species; unfortunately, however, its bulk and consequent price placed it beyond the reach of many a humble but ardent student, who was obliged to rest content with the more accessible and more portable 'Compendium Floræ Britannicæ,' if he understood Latin — or with Galpiné's 'Synoptical Compend,' Macgillivray's Withering, or the 'Compendium of the English Flora,' if his literary acquirements extended only to the English language. All these were exceedingly useful books, to the travelling botanist more especially; but the three of the highest authority — the Compendiums — laid claim to little more than the merit of being correct indexes to the larger works. In 1830 appeared the first edition of Hooker's 'British Flora,' intended, as the author says in the preface, "1stly, to provide the young student with a description of our native plants, arranged according to the simplest method; and 2dly, to afford to the more experienced botanist, a manual, that should be useful in the field as well as the closet." The first object was gained by the adoption of the Linnæan method; the second, by happily steering a middle course between the two extremes of devoting so much space to the descriptions and synonyms as would increase the bulk of the book, or so curtailing the characters that they would scarcely be available for specific discrimination by the majority of those for whose use the work was intended. That the idea was a happy one, and on the whole well worked out, can scarcely be doubted, when we consider that within about ten years from its first appearance, four large editions of the 'British Flora' in its original form have been disposed of; but we must confess that we do greatly

* The first volume of Smith's 'English Flora' was published in 1824, but the work was not completed until 1828, when the fourth volume appeared, accompanied by a reprint of the preceding three volumes.

doubt both the policy and the expediency of the recent change in the arrangement of the work, unaccompanied by corresponding improvements in the matter, of which more anon.

In addition to the works above named, which are all arranged according to the Linnæan system, and have all gone through several editions, we may here mention two others, in the arrangement of which the natural system was followed; we allude to Lindley's Synopsis and Macreight's Manual. All these different publications have, however, more or less the air of compilations; their respective authors or editors having probably supposed that as so much had already been effected in British Botany, nothing more was required, than perhaps just to register any new species or variety that might by chance offer itself to their notice; such an event as the appearance of an *original* British Flora being deemed beyond the bounds of possibility. The publication of Leighton's 'Flora of Shropshire' we believe to have had some effect in dispelling this illusion; at all events it would naturally lead to the reflection, that if in the Flora of a single county so many improvements could be effected by the exercise of a little original observation, it were not unreasonable to suppose that a patient and careful investigation of the general Flora of the kingdom, would yield a rich and abundant reward to the botanist who should undertake the task.

The state of botanical science in Britain, at the period when Mr. Babington first commenced his investigation of our Flora, and its probable causes, are thus described in the Preface to that gentleman's Manual.

"From the attention which has long been paid to the elucidation of the Flora of Britain, and the numerous excellent botanists who have, since the time of the justly celebrated Ray (not to go further back), employed their talents upon an endeavour to determine the indigenous products of these kingdoms, the author, in common it is believed with most English botanists, did not suppose that much remained to be done in British Botany; for he could not expect that after the labours of such men as Smith, Hooker, Lindley, and others, and the publication of so invaluable and unrivalled a collection of figures as is contained in the 'English Botany,' there could still be many questions concerning the nomenclature, or any considerable number of unascertained species, the determination of which would fall to his lot. He had not however advanced far in the critical examination of our native plants, before he found that a careful comparison of indigenous specimens with the works of eminent continental authors, and with plants obtained from other parts of Europe, must necessarily be made, for it appeared that in very many cases the nomenclature employed in England was different from that used in other countries, that often plants considered as varieties here were held to be distinct species abroad, that several of our species were only looked upon as varieties by them, and also that the mode of grouping into genera was frequently essentially different.

"The discovery of these facts produced considerable astonishment, and the author was led to consider what could have been the causes of so remarkable a discrepancy. The following appears to be the most probable explanation. It is well known that at the close of the last century Sir J. E. Smith became the fortunate possessor of the herbarium of Linnæus, and was thus enabled to ascertain, with very considerable accuracy, the British species which were known to that distinguished man, and to publish, in the most improved form that he had given to his system, a remarkably complete and excellent Flora of Britain. Then followed the long-continued separation of this country from France, and indeed from most of the European nations, by which we were almost completely prevented from observing the progress which botanical science was making in other countries, and at the same time our own flora was continually receiving accessions of new plants which it was nearly impossible to identify with the species detected and published in France and Germany. At the conclusion of the war we had become so wedded to the system of Linnæus, and it may even perhaps be allowable to add, so well satisfied with our own proficiency, that, with the honourable exception of Mr. Brown, there was at that time scarcely a botanist in Britain who took any interest or paid the least attention to the classification by Natural Orders which had been adopted in France, and to the more minute and accurate examination of plants which was caused by the employment of that philosophical arrangement. Let it not however be supposed that the author wishes at all to detract from the value of the Linnæan system—a system which was considered by its author as merely a provisional arrangement or kind of index to the known plants; for no botanist has more strongly stated the value of a natural classification than Linnæus himself,—as he fully believes that without some such artificial scheme by which newly discovered plants could be catalogued for easy reference, the multitudinous species which distant countries have supplied would long since have formed so enormous and confused a mass as to have reduced Botany to a state little better than that into which it had fallen at the commencement of the Linnæan era.

"The publication of so complete and valuable a Linnæan work as the 'English Flora,' greatly contributed to the permanency of this feeling, and accordingly we find that at a very recent period working English botanists were unacquainted with any of the more modern continental floras, and indeed even now many of those works are only known by name to the great mass of the cultivators of British Botany."—Pref. v.

It now remains for us briefly to enquire which of the two works before us is the most likely to have the effect of enabling the student of British Botany to take his stand by the side of the continental cultivators of the science, or at least to enable him to make some steps in advance of his present position. And here we feel that we are treading on dangerous ground; we feel that whatever is stamped with the authority belonging to so illustrious a name as that of the author of the well-known and widely circulated 'British Flora,' must be approached with caution, nay, almost with reverence; and that no rude hands ought to be laid on the structure he has raised. We should however be wanting in our duty as honest chroniclers, did we not state it to be our opinion, and we state it with regret, that the fifth edition of

the 'British Flora' is neither calculated to extend the fame of its author, nor in any considerable degree to raise the standard of botanical excellence in this country; it even, in many points, falls short of the actual state of knowledge of our native plants, existing in Britain at the period of its publication.

We believe that the numerous avocations of the author have been urged, even by his reviewers, in extenuation of sundry little blemishes, which those fond of such employment might hunt out in the former editions of the 'British Flora.' Such a plea, to a certain extent, we are quite willing to admit; at the same time we contend, that in the preparation of a new edition of a popular and really useful work, the public, who have so warmly patronized the earlier editions, have a right to expect that a little more care should be taken than appears to have been bestowed on this same fifth edition of the 'British Flora,' and certainly a little more regard for the researches of fellow-labourers would not have been altogether out of place. For instance;—if, instead of simply quoting the Edinburgh Catalogue as a mere list of synonyms, not worth the trouble of investigating, Sir William had been led by his doubts to a re-examination of the works of the continental authors whose nomenclature is there adopted, and had then thought it necessary to reject that nomenclature,—his reasons for doing so would have been heard with deference and respect. Again; as one example of Sir William's disregard of the labours of British botanists, may be mentioned the long-mooted question respecting the parasitism of *Monotropa*; which, in the period between the publication of the fourth and fifth editions of the 'British Flora,' was fully investigated and satisfactorily decided; yet we here find repeated the same words—"Root fibrous, parasitic?"—which have appeared in all the former editions of that work. Nor is any allusion made to another form of *Monotropa*, now found to be common in England, and apparently so distinct from *Hypopitys*, as to have been raised to the rank of a species by many botanists. A little more care would also have led to the detection and correction of numerous erroneous references to 'English Botany,' which have been perpetuated from first to last: like the old nomenclature for the ferns and their allies, which is retained with scarcely a single change. The book is, in fact, little more than the fourth edition newly arranged, that is, the natural system is followed instead of the Linnæan in the body of the work, with a Linnæan synopsis of genera prefixed: the preface even has not been rewritten in justification of this change of plan; a few sentences having been grafted on the old stock in reference to the use of the Linnæan

synopsis. We regret to have found occasion for this ungracious task of fault-finding, because we believe that Sir William could have done much better.

We will now turn to Mr. Babington's Manual, and see how nearly that comes up to the idea of what a new book on British Botany ought to be. The model chiefly followed in its preparation is Koch's '*Synopsis Floræ Germanicæ*;' but other standard works have also been consulted.

"In the present work it has been the author's endeavour to adopt, in all cases, those names which have the claim of priority, unless good cause could be shown for a contrary proceeding, and with this object he has carefully examined nearly all the best European Floras, comparing our plants with the descriptions contained in them, and in very many cases with foreign specimens of undoubted authenticity. In the adoption of genera and species an endeavour has been made, by the examination of the plants themselves, to determine what are to be considered as truly distinct, thus, it is hoped, taking Nature as a guide, and not depending upon the authority of any name, however distinguished. Still let it not be supposed that any claim is made to peculiar accuracy, nor that the author considers himself qualified to dictate to any student of Botany, for he is well aware that there are many points upon which persons who have carefully studied the subject may form different conclusions from those to which he has been led."—Pref. vi.

This is as it should be; and such, doubtless, was the plan adopted, so far as circumstances would permit, by Sir J. E. Smith, and by the author of the '*British Flora*' himself, in the preparation of the early editions of that work: there is, nevertheless, a greater amount of originality observable in the pages of the Manual, than in any general work on British Botany that has issued from the press since the publication of the '*English Flora*.' In a very few instances Mr. Babington has thought it better to rely more on the labours of his predecessors than on his own judgment, as in the difficult genera *Rosa* and *Rubus*, respecting which he expresses his obligations to the valuable monographs by Mr. Borrer, published in the '*British Flora*.' But, while studying the works of the great continental botanists, the author has not deemed it unnecessary to note what has been going on at home, and that, too, up to the latest possible date previous to the publication of his Manual; which is thus rendered more complete than it would otherwise have been. The orders and genera are necessarily defined as concisely as was consistent with perspicuity; but we should like to see, in a future edition, a general table of the orders and genera, arranged on the dichotomous or some other plan, prefixed to the volume, as well as the present Linnæan synopsis.

We must conclude with the following paragraph, which conveys the author's wishes respecting a future edition of his Manual.

"It is hoped that those who use this book will favour the author with information of any (even the slightest) addition, correction or alteration that may appear to be necessary, in order that it may be employed in the preparation of a future edition, as it is only through such assistance that the Flora of an extensive country can attain to even a moderate degree of perfection."—Pref. viii.

We think that the cause of British Botany could scarcely be better served than by the extensive circulation of this work, especially if its possessors are not sparing of either their criticism or their labour, the one in discovering and pointing out to the author any errors into which he may have fallen—the other in furnishing him with additional materials, the stock of which is as yet far from being exhausted.

ART. CLIV.—*Varieties.*

323. *List of Mosses found near Manchester.* I have pleasure in sending you the following list of mosses, growing within fifteen miles of Manchester. That it is by no means perfect I am willing to allow, as I have intentionally omitted several species recorded as growing in this neighbourhood, either on account of their exact localities not being given, or from the authority being sometimes questionable.

- | | |
|--|---|
| <i>Andraea alpina.</i> Hills above Staley bridge | <i>Anictangium ciliatum.</i> Hills above Staley bridge. |
| —— <i>Rothii.</i> Plentiful at Greenfield, Saddleworth. | <i>Diphyscium foliosum.</i> Greenfield and its neighbourhood. |
| <i>Phascum serratum.</i> Near Dukinfield, on hedge banks. | <i>Tetraphis pellucida.</i> Bredbury wood and Blakeley clough. |
| —— <i>alternifolium.</i> Hedge-banks on the Hyde road. | <i>Sphachnum sphaericum</i> and <i>mnoides.</i> Common on all the bogs. |
| —— <i>subulatum.</i> Very common. | —— <i>ampullaceum.</i> Clifton moss. |
| —— <i>axillare.</i> Found occasionally in various places. | <i>Weissia nuda.</i> Lower Broughton and Blakeley. |
| —— <i>patens.</i> Road-side, near Baguley Smithy. | —— <i>curvirostra.</i> Common on walls and rocks |
| —— <i>muticum.</i> Hobson found this species plentifully near Blakeley, but it has not been met with lately. | —— <i>recurvata.</i> Ashworth wood, near Heywood. |
| <i>Sphagnum obtusifolium</i> and <i>acutifolium.</i> Common in all the bogs in this neighbourhood. | —— <i>lanceolata.</i> Hedge banks, near Openshaw. |
| —— <i>squarrosum.</i> In boggy pits. | —— <i>controversa.</i> Walls & rocks, com. |
| —— <i>cuspidatum.</i> Pits near Ashton moss. | —— <i>cirrhata.</i> Marple, common. |
| <i>Gymnostomum truncatulum.</i> Very common, and var. β . equally common. | —— <i>crispula.</i> Shawforth moor, near Rochdale. |
| —— <i>fasciculare.</i> Greenfield &c. | —— <i>trichodes.</i> On stones at Greenfield. |
| —— <i>pyriforme.</i> Walls nr Hyde. | <i>Grimmia apocarpa.</i> On stones in the river Tame, near Staley, and at Marple. |

- Grimmia pulvinata*. Walls & rocks, com.
 ——— *Doniana*. Rowley moor, near Rochdale.
Didymodon purpureus. Marple.
 ——— *heteromallus*. Not uncommon.
 ——— *flexifolius*. Greenfield.
Trichostomum lanuginosum. Common on the hills near Mottram &c.
 ——— *canescens*. Greenfield.
 ——— *aciculare*. Greenfield, and near Rochdale.
Dicranum bryoides. Very common.
 ——— *taxifolium*. Ditto.
 ——— *adiantoides*. Bredbury wood and Blakeley.
 ——— *glaucum*. Baguley moor, and beyond Staley bridge.
 ——— *squarrosum*. Cotterill and Marple cloughs.
 ——— *scoparium*. Common.
 ——— *flexuosum*. Chat moss, and near Tildsley.
 ——— *varium*. Not uncommon.
 ——— *heteromallum*. Very common.
Tortula muralis and *ruralis*. Common.
 ——— *subulata*. Near Dunham &c.
 ——— *fallax*. Common.
Cinclidotus fontinaloides. Marple.
Polytrichum undulatum. Very common.
 ——— *piliferum*. Common near Mottram, and other places.
 ——— *juniperinum*. Dunham park.
 ——— *commune*. Baguley moor &c. very common.
 ——— *aloides*. Common.
 ——— *nanum*. Blakeley &c.
Funaria hygrometrica. Very common.
Orthotrichum pulchellum. On walls in Marple wood.
 ——— *anomalum*. Cotterill clough.
 ——— *diaphanum*. Dunham park.
 ——— *striatum*. Moors beyond Staley.
Bryum julaceum. Banks of the Irwell, near Clifton aqueduct.
 ——— *carneum*. Hills above Staley bridge.
 ——— *elongatum*. Greenfield.
- Bryum argenteum*. Common.
 ——— *pyriforme*. I found a specimen or two near Mottram, but cannot tell the precise locality.
 ——— *turbinatum*. Hills above Staley bridge.
 ——— *capillare*. Marple aqueduct, &c. common.
 ——— *cæspitium* and *natans*. Common.
 ——— *palustre*. Chat moss.
 ——— *roseum*. Cotterill clough, &c.
 ——— *ligulatum*, *hornum* and *punctatum*. Common.
 ——— *rostratum*. Tatton park.
Bartramia pomiformis. Chorlton fields, &c.
 ——— *fontana*. Baguley moor.
 ——— *arcuata*. Alderley, and near Staley bridge.
Neckera pumila. Cotterill clough, rare.
 ——— *crispa*. Marple, &c.
Anomodon curtipendulum. On stones at Greenfield, &c.
Daltonia heteromalla. Tatton park.
Fontinalis antipyretica. Pits near Gorton, Baguley moor.
 ——— *squamosa*. Marple, &c., com.
Hookeria lucens. Cotterill clough, and Mere clough.
Hypnum trichomanoides & *complanatum*. Cotterill & Marple cloughs, Hough-end, &c.
 ——— *riparium*. Bredbury wood, Hough-end, &c., common.
 ——— *undulatum*. Near Staley bridge, common.
 ——— *serpens* and *purum*. Very com.
 ——— *Schreberi*. Near Clifton aqueduct, and Marple.
 ——— *sericeum*. Hough-end hall.
 ——— *salebrosum*. Cotterill clough, ra.
 ——— *alopecurum*. Cotterill & Marple.
 ——— *dendroides*. Reddish vale.
 ——— *curvatum* and *mysosuroides*. Cotterill clough.
 ——— *splendens*. Common in woods.
 ——— *proliferum*. Common, bearing fruit in Cotterill clough.
 ——— *prælongum*. Common.

<i>Hypnum flagellare</i> . Greenfield, but not in fructification.	<i>Hypnum brevirostre</i> . Not uncommon.
—— <i>piliferum</i> . Cotterill clough.	—— <i>filicinum</i> . About Marple &c. common.
—— <i>rutabulum</i> . Very common.	—— <i>aduncum</i> . Baguley moor, and near Bowdon.
—— <i>velutinum</i> . Near the river Tame at Arden, and near Hyde.	—— <i>uncinatum</i> . Marple aqueduct.
—— <i>albicans</i> . Chorlton fields.	—— <i>commutatum</i> . Bredbury wood &c. common.
—— <i>ruscifolium</i> . Common in brooks.	—— <i>cupressiforme</i> . Several very curious varieties are found in Bredbury wood, Cheshire.
—— <i>confertum</i> . Bredbury wood and other places, common.	—— <i>molluscum</i> . Near Marple, very common.
—— <i>cordifolium</i> . Pits near Reddish.	
—— <i>triquetrum</i> . Very common.	
—— <i>loreum</i> . Greenfield.	

—*Joseph Sidebotham ; Manchester, March 16, 1843.*

324. *On the arrangement of a Herbarium.* Imagining that the plan I pursue in the arrangement of my herbarium is in some respects superior to that of Mr. King (Phytol. 585), I am induced to forward a short detail of it, in the hope that it may contain hints which may be of service to some of your readers. I ought to say, that although I have varied some of the details, I adopted the principle of the plan from seeing it carried out in the herbarium of a friend, which contained an extensive collection of both British and foreign species, kept in beautiful order. *Specimens.*—My specimens are fastened on sheets of folio post paper, of good texture, size $15\frac{1}{4}$ inches by $9\frac{1}{2}$. The specimens are fastened with gum Arabic on the inner right hand page of each sheet; and on the opposite one I write the name, order, and other particulars: I also write the botanical name at the top of the outside of the sheet. Before placing each species in its appropriate place in the herbarium, I wash it lightly over with a solution of corrosive sublimate in spirits of wine or spirits of turpentine, in the proportion of 60 grains of the former to 8 fluid ounces of either of the latter. *Arrangement.*—I arrange my specimens on the natural system; and for this purpose I have wrappers, each of half a sheet of double crown paper folded: on the outside of which is written the name of one of the natural orders; in this I place all the sheets of specimens belonging to that order. In the orders Rosaceæ, Compositæ, Gramineæ, and one or two others, it may be as well to subdivide each into two or three portions, and use a separate wrapper for each. The wrappers, with their contents, are placed in wooden boxes, made after the fashion of a music-case, namely, with a lid at the top, and the front hinged so as to fall down on a level with the bottom. I have these boxes made of the size of my paper, and $6\frac{1}{2}$ inches deep, which accommodates about 300 species in each case. As an index I

use the Edinburgh Society's Catalogue, affixing an asterisk in red ink to the name of each species in the herbarium. In this way the collection may be kept in beautiful order, and at all times in a state of readiness for convenient reference. — *Wm. L. Notcutt ; Fareham, June 2, 1843.*

325. *Friendly Hint to Subscribers.* I am very sorry to perceive, from the cover to 'The Phytologist' for June, that its circulation does not pay its expenses. Might I presume to suggest, that if each subscriber would endeavour to obtain, among his botanical friends, one additional subscriber, it would relieve the magazine from its difficulties, and continue to us a periodical which has hitherto been very interesting and useful, and which will, I trust, long maintain its standing.—*Id.*

326. *Note on Veronica Buxbaumii and V. triphyllos.* I enclose a specimen of *Veronica Buxbaumii*, and also one of *V. triphyllos*, both of which have been discovered this spring within two miles of York, the former in a clover field, the latter on a sandy bank. I observe that *V. triphyllos* is mentioned by Sir W. J. Hooker as being found in Yorkshire, though accompanied with a query. — *Silvanus Thompson ; Friends' School, York, 6th Month 5, 1843.*

327. *Note on the Habitats of Equisetum fluviatile, Sm.* I went the other day, with my friend Mr. Sparkes, to Norwood, and minutely examined the station where I found *Equisetum fluviatile* last summer. After reading the discordant statements which have lately appeared in 'The Phytologist' respecting the habits of this plant, we felt a desire to prove whether any specimens of it would be found actually in the water. It was growing most plentifully on the steep bank alluded to by me in the August number (*Phytol.* 295), but much more sparingly on the small piece of wet ground between that and the pond ; yet a few stems were found close to the water's edge. There was not, however, a single specimen that actually grew in the water. It is worthy of remark, too, that by far the most luxuriant specimens were those which grew on the bank ; those about the pond being much more stunted in appearance. All the authorities within my reach assign a station for *Equisetum fluviatile* near rivers and lakes ; but none speak of it as actually growing in water. I send you a specimen of my plant, to remove all doubts as to identity. The spot where it grows, is not more than a hundred yards from the top of Westow Hill, Norwood, going towards Dulwich.—*Wm. Ilott ; Bromley, Kent, June 5, 1843.*

328. *Note on Centranthus Calcitrapa.* The following notice of

Centranthus Calcitrapa is at your service, if you think it worth inserting among your Varieties. It is now fifty, if not sixty, years since I first saw this plant on a wall at Eltham, where it was well known to the London botanists, who, I believe, always thought it had escaped from Sherard's garden, and it was therefore considered a naturalized plant, not to be admitted into a British Flora. We also used, at the same time, to find it on the wall of a garden at Enfield, in Middlesex, which had formerly been that of Dr. Uvedale, the friend of Plukenet, in which was then a celebrated cedar of Lebanon. Not having been that way lately, I do not know the present state of the place.—*Edw. Forster ; Woodford, June 6, 1843.*

329. *Note on Myosotis sylvatica.* I find *Myosotis sylvatica* growing abundantly in several ash plantations in this neighbourhood. It flowers throughout the month of May and the early part of June, and during this period makes a very splendid appearance. I have recently observed a beautiful variety with pure white flowers, which I think is not common ; a specimen of it I now enclose. — *Thomas Bentall ; Halstead, Essex, June 7, 1843.*

330. *Note on Equisetum fluviatile*, Sm. It is highly desirable that the controversy respecting *Equisetum fluviatile* should be settled as early as possible, and surely there can be no great difficulty in the matter. About Manchester it is one of our *very common* plants, growing in woods, pastures, meadows, and moist gravelly banks, but I never yet met with it *growing in water*. The nearest approach to the latter habitat is in the wood below Arden Hall, Cheshire, where it flourishes *in a swamp*, to the height of six or seven feet. Now the branched state of *E. limosum*, which is not unlike *fluviatile* in general appearance, completely fills up many of the ponds in this neighbourhood, and I am therefore induced to think it possible that the two plants may sometimes have been confounded, and that thus the question as to the true habitat of *E. fluviatile* has originated. At Reddish, yesterday, I noticed a cow in one of the *limosum* ponds, eating off the tops of this species ; but whether from a liking to the *Equisetum*, or to the *Glyceria fluitans* which was growing with it, I am unable to say.—*Joseph Sidebotham ; Manchester, June 9, 1843.*

331. *Note on Fragaria elatior.* I am almost inclined to believe that the authors of the various works on the British Flora, must have written their descriptions of *Fragaria vesca* and *elatior*, without having seen specimens of the latter. According to Sir W. J. Hooker, the hairs of the pedicels are closely pressed in *F. vesca*, but widely spreading in *elatior* ; this is the only character given by which we are

to know the two plants apart. Dr. Withering gives no other, except size; and, if I remember rightly, Sir J. E. Smith is equally obscure on this point. When it is borne in mind that pubescence varies much with situation, the above character seems but a frail one to depend on, especially as there appears to me to be a far more striking distinction by which *F. elatior* may at once be recognised. In *F. vesca*, the petals are *white*, both in the *limb* and *claw*, and their *length* and *breadth* are about *equal*, the limb has *two slight notches*, and the *claw* is very *indistinct*. The petals in *F. elatior* are in length only equal to *two thirds* of the *breadth*; the *limb* is *white* and perfectly *entire*, the *claw* is quite *distinct*, and *bright yellow*. I found the two species growing together in Earl Bathurst's park, in this neighbourhood, and was much struck with the difference between them; the flowers of *F. elatior* are far handsomer than those of *vesca*. — *Alfred Knight; Cirencester, June 13, 1843.*

332. *Anemone Apennina found in Yorkshire.* I send you a specimen of *Anemone Apennina*, collected this spring in a wood near Otley, Yorkshire, by Miss Garnett. I am not aware of its having been found in this county before. — *Wm. Ainley; Bingley, June 20, 1843.*

333. *Note on Carex boenninghausiana*, Weihe. I have for some time past had in my herbarium two specimens of a *Carex* labelled *C. axillaris*, from Crichton Castle, Scotland. I had long felt considerable doubt whether they were properly referred to that species; though I was pretty certain they did not belong to *C. remota*, to which the Crichton Castle plants are referred by Mr. Edmonston, (*Phytol.* 407 and 522). A few weeks ago I had occasion to send my *Carices* to Mr. Gibson, of Hebden Bridge, for his examination, but without expressing my doubts of this species' being correctly named, as I did in several other instances. On their return, I found that Mr. Gibson had pointed out the differences between my plants and the descriptions of *C. axillaris* as given by Hooker, in the '*British Flora*,' and by Mr. Wilson and Dr. Wood, (*Phytol.* 299 and 300) as well as Mr. Leighton's figure of the fruit of *C. axillaris*. I now find that my plants are the *C. boenninghausiana* of Weihe, a species introduced to the notice of British botanists by Mr. Babington, in his lately published *Manual*. It has the habit of *C. axillaris*, but differs from that species chiefly in the nearly entire beak of the fruit being "serrated from *below* the middle," in the glumes about equalling the fruit, their midrib "not reaching the point," and in the bracts not being auricled at the base, but having a narrow brown ligule passing round the rachis. — *Geo. Luxford; 65, Ratcliff Highway, June 21, 1843.*

334. *Asperugo procumbens* a *Kentish Plant*. The cares and duties of the day being finished, I strolled out, a few evenings since, in the direction of the Abbey Wood, beyond Erith village, when after a lengthened ramble in the neighbourhood of Plumstead, and towards Plumstead church, I chanced to meet with a plant I had never before seen, and had not hoped to find in this county, namely, the extremely scarce and interesting *Asperugo procumbens*, *Linn.* It occurs sparingly in one or two places in a narrow bushy lane, part of the foot-way leading from the marshes at the Thames-side to Plumstead church-yard. The plant appeared to have been somewhat injured — probably through the late almost incessant rains — but was in other respects very luxuriant and beautiful. Irvine, in his ‘*London Flora*,’ mentions the *Asperugo* as having been found in Essex, but, if I remember rightly, does not give any recently verified habitat for it. This notice is sent for publication in ‘*The Phytologist*,’ simply from a sincere desire to add an humble mite of information to the general record already contained in the pages of that most useful periodical; and therefore I should be exceedingly sorry to find that my having done so should lead to the *eradication* of this rare plant, in what I believe to be its only known station in Kent. The *Asperugo* is fragile and delicate, and, like its congeners, *Lycopsis*, *Lithospermum*, and other *Boragineæ*, loses its beauty sadly in drying.—*Edward Edwards; Bexley Heath, Kent, June 22, 1843.*

ART. CLV.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF EDINBURGH.

May 11, 1843.—Dr. Neill, President, in the chair. John Kirk, Esq., was elected a resident fellow. Mr. Brand read a communication from Dr. Joseph Dickson of St. Helier's, Jersey, respecting some recent discoveries in the Flora of that island.

Dr. Neill communicated an interesting letter from Mr. Brackenridge, who was at one time a journeyman in the experimental garden here, and now holds the post of botanical curator at Washington. We insert full excerpts from his letter, the more readily, that his successful career may encourage others of his profession to similar exertions. Mr. Brackenridge writes:—“I spent the first fourteen months in the United States very much to my satisfaction, as foreman to Mr. Buist, who has one of the largest plant establishments in America. When the South Sea expedition was organised, I was induced by Mr. Poinsette, the Secretary of War, to accompany it in the capacity of Assistant-botanist and Horticulturist. The voyage lasted nearly four years, and my compensation during the last three years was 1200 dollars per annum. The squadron (under the command of Lieutenant Wilkes) on its way out touched at Madeira, the whole of which we scoured. I ascended the Peak of Ruive (6246 feet high) almost

to its very summit. It is covered with dense forests of *Erica arborea* and *Mediterranea* (which some travellers have called *Pine trees*). Several of these heath trees are forty feet high, and at eighteen inches from the ground their stems are two feet in diameter,—*E. Mediterranea* always the largest. At the very summit is a small species (perhaps new), in habit like Mr. M'Nab's *E. ramulosa*. The Madeira mahogany (*Laurus Indica* and *fatans*) is in great abundance, and as large as English oaks. In five days we collected 460 species of plants on the island. At the Cape de Verds, Rubiaceous annuals and grasses were the principal plants found. But Brazil, at which we next touched, may be denominated the head-quarters of Flora. I went about 150 miles inland, in a N.E. direction, from Rio de Janeiro, travelling most of the way through forests of flowering trees, fantastically adorned with innumerable parasitical and epiphytal plants. These trees were often propped up by aerial roots, which reminded one of the rigging or stays of a ship. The undergrowth in such places consists of palms, arborescent and many other ferns, with a goodly number of Solanaceous and Rubiaceous shrubs. The Organ Mountains, seventy miles from Rio, after all that Mr. Gardner and others have done, abound in thousands of fine plants not yet known. I spent about eight days on these mountains, and found plants so varied and attractive that I did not know well which to select. On rocks there are Gesnerias, Gloxinias, Caoti, Tillandsias and Orchidæ in the greatest profusion. I calculate that more than *one half* of the plants of Brazil are still unknown to botanists. Insects, birds and quadrupeds are as varied, in proportion, as the vegetable kingdom. We spent about two months on Tierra del Fuego. Here was a contrast to Brazilian vegetation: stunted birches, with Misodendrons in tufts like birds' nests on their tops—scrubby barberries—winter bark—and Embothrium (a splendid Proteaceous shrub), were the characteristic features. The face of the hills is covered with spongy, mossy turf, in which we found a *Primula* (like *Scotica*), *Drosera*, *Pinguicula*, several species of *Per-netha*, a *Myrtus*, and the charming *Calixenia*; with many nice things which I thought well adapted for your alpine frame.

"We reached Chili in the dry season, so that we did not find much in flower till we arrived at the mountains. Behind Santiago, on the Andes, at the region of perpetual snow, we found an immense number of alpine plants belonging to genera and tribes new to us. Figure to yourself ten or twelve kinds of Umbelliferous plants, with heath-like leaves, and fruit as large as that of *Heracleum*, and yet none of them over an inch in height. In Peru, behind Lima, we crossed the Andes at the height of 16,000 feet, and descended a considerable way on the opposite side, along one of the branches of the Amazon. This was a rich journey for us in plants,—fine *Rhododendrons* at the height of 13,000 feet. At the base of the snow was a dense sward of plants, none of them over an inch high, principally composed of *Saxifrages*, *Compositæ*, *Gentianas*, and curious *Calceolarias*. At 14,000 feet we found vast patches of an *Echinocactus*, so wrapped up in its own wool, that at a distance we took the patches for sheep. The scenery here was of the grandest kind. We saw some splendid *Cacti*, *Alstromerias* and *Tropæolums*, and on our way down, fields of *T. tuberosum* and *Oxalis crenata*. Very little rain falls in the vicinity of Lima, so that to raise fruit and vegetables recourse must be had to irrigation. The *Cherimolia* (*Annona tripetala*) is here the finest of all fruits I ever tasted.

"You will, no doubt, have heard of our discovering an Antarctic continent, (Ross says 'tis only a batch of islands). Of this I can't speak, having been left at Sydney with the other scientific gentlemen. - Here we chartered a schooner, and went to New

Zealand, where we spent eight weeks. This same New Zealand is not the fine country that the English government and land speculators crack it up to be. The climate is very wet, and the soil cold and poor—consisting principally of a stiff yellow loam, on great part of which nothing grows but a species of *Pteris*, whose roots form the principal food of the natives. The surface of the country round the Bay of Islands is very irregular,—high ridges and valleys succeeding each other in rapid succession. In some of these valleys, from eight to ten species of Coniferous trees are found—among them the Courie pine (*Agathis Australis*) 120 feet high.

“Leaving New Zealand, we touched at Tongataboo on our way down to the Fiji Islands—260 in number—all which we surveyed. In doing this, two of our officers were brutally murdered by the natives. We had also a proof of these islanders being cannibals, as they brought in a canoe, alongside of our ship, part of a human body, which they were eating. We discovered several new islands on the line in passing to the Sandwich Isles. The grandest sight seen during our cruize, was the volcano on the Island of Hawaii. After spending six months on the north-west coast of America, our voyage lay again by the Sandwich Isles; and searching for a near passage to the China Sea, we were led among the Sooloo Isles and Straits of Balabac, then down to Singapore, which is a very flourishing place. Here I met a cousin of Sir Walter Scott’s, who looks very much like what the old man was.

“During this voyage we collected and dried upwards of 10,000 species of plants; sending also a great many live ones and seeds to the National Institute at Washington, to which I am at present attached. To me the most interesting of these plants is a species of *Nepenthes* from Singapore, bearing pitchers much larger every way than those of the *N. distillatoria*, and, when perfect, capable of holding a pint of water. There are two other species at Singapore, one with many small pitchers in bunches, on a woody stem, found in pools of water, while the other covers a low sandy island in the Strait, about three miles off the roadstead. At Manilla there is a species distinct from any I have seen elsewhere.”

Professor Graham exhibited some very beautiful and interesting exotics, recently brought into flower in the greenhouses and stoves; and afterwards accompanied the members over the garden, which presented a most charming appearance. Every season it is becoming more and more developed; and the late alterations reflect much credit on the learned Professor, and his able coadjutor, Mr. M’Nab.

June 8, 1843.—Professor Graham in the chair. Donations were presented to the library from C. C. Babington, Esq., Cambridge, (his ‘Manual of British Botany’); from Dr. J. K. Maly of Gratz; L. W. Dillwyn, Esq., and others.

Mr. James M’Nab exhibited specimens of *Laburnum*, presenting some remarkable anomalies. He stated that several years ago, a tree was sent from the Epsom nursery to the Royal Botanic Garden here, as a curiosity, bearing *three* distinct varieties of *laburnum* on the same root, without any further engrafting than that of working the red *laburnum* on the yellow. This tree is now to be seen in flower, the yellow and red flowers being predominant. Last spring he observed a tree of the red *laburnum* in the Horticultural Garden, bearing several large tufts of *Cytisus purpureus*, with one small shoot of the yellow. The same tree, this year, has ten distinct shoots of the yellow, and a quantity of those of *C. purpureus*.

On Monday last, at Dysart house, he observed two trees, one bearing *Cytisus purpureus* and *C. Laburnum coccineum*, the other *C. Laburnum* and *C. Laburnum coccineum*; but neither of them having more than two varieties. This afternoon he ex-

amined plants of the red laburnum in Messrs. Lawson's nursery, three years grafted, and found several of them producing shoots of the yellow, but only one of them having *C. purpureus*; and in the nursery of Messrs. J. Dickson and Sona, several of the plants, two years grafted, have shoots of the yellow but none of the purple.

The red laburnum first appeared at Paris in 1828, in the nursery of Mr. Adam, and was a hybrid between the common laburnum and *Cytisus purpureus*.

Dr. Graham observed that it was difficult to explain the cause of this phenomenon, namely, of males reproducing the different forms on one plant. It had occurred also in plants of the Cactus tribe, but had no parallel in the animal kingdom -- there the general form and habit merely are affected by crossing. He considered the subject to be one of much interest, as the phenomenon was at variance with the existing theories.

Mr. M'Nab exhibited recent specimens, in flower, of *Orchis ustulata* and *Ophrys fucifera* from Kent, which had been kindly procured by Lady Harvey for the meeting.

Dr. Douglas MacLagan presented to the Society, from Mr. John Scott, F.B.S., Greenock, a series of specimens of the more important kinds of timber in use for the purposes of ship-building. The author mentioned, among others, the following kinds of timber. :—Yellow pine (*Pinus variabilis*) from North America. Pitch pine (*P. rigida*) from Carolina. Red pine (*P. resinosa*) from Quebec. These kinds are chiefly applicable to making deck-planks, or for light spars.

The American or rock elm (*Ulmus Americana*) and the black birch (*Betula lenta*), were likewise noticed along with beechwood, as being the kinds best adapted for keels, bottom planks, and other parts of ships which are submersed in water.

British and American oak, and East Indian or Malabar teak (*Tectona grandis*), were mentioned as being of very general applicability to the purposes of the shipwright, as also the African teak, or, as it is often called, African oak—the tree yielding which is still unknown to botanists. Two varieties of hard and heavy woods were pointed out as being occasionally imported among African teak, and having similar qualities, but which are unknown to botanists or wood-merchants.

Of timbers imported from the West Indies, two deserve remark. The first is the Mora or Morra timber *Mora excelsa*, Schomb.), which is a large and valuable timber, now introduced in considerable quantity from British Guiana: it has a fœtid odour when scraped. The other is the green-heart timber, produced by an unknown tree of British Guiana, a heavy, hard, and valuable timber, well adapted for ship-building, and now extensively used in the Clyde. Dr. MacLagan had sent specimens of the fruit of this tree to Dr. Lindley and Sir W. Hooker, both of whom considered it as Lauraceous, but had been unable to refer it to any known genus. He stated to the Society that this tree was known in Demerara by the Indian name of Bebeeru, and also by the Dutch name Sipeeri; and that the bark of it had been found, by Mr. Rodie, to contain a vegetable alkaline matter, which possessed the power of curing agues. Recent experiments of his own had shown that there were two distinct alkalies present in the bark and seeds of this tree.

Previous to the reading of these papers, Professor Graham, accompanied by a large party, visited the greenhouses, where he pointed out some of the more rare and interesting plants, with which they are now literally crowded. It was pleasing to see so many specimens, brought together from every climate and region, in the most thriving and luxuriant state, with scarcely an exception.

June 2.—John Reynolds, Esq., Treasurer, in the chair. Donations to the library were announced from the Academy of Natural Sciences, Philadelphia, and Dr. Tilley. Mr. W. Andrews, Secretary of the Natural-History Society of Dublin, presented an interesting collection of Irish plants, comprising specimens of *Arundo lapponica*, *Arenaria ciliata*, *Lathyrus maritimus*, *Trichomanes speciosum*, several varieties of *Saxifraga Geum*, &c., many of them being from new localities. Specimens of *Anemone ranunculoides*, found wild in a wood near Worksop, Nottinghamshire, were presented by Mrs. Margaret Stovin. Mr. F. Bainbridge presented a specimen of *Lecidea Wahlenbergii*, *Acharius*, a lichen new to the British Flora.*

Read, the continuation of a paper commenced at the last meeting,—"On the Groups into which the British Fruticose Rubi are divisible," by Mr. Edwin Lees, F.L.S., &c. Before the Rubi can be adequately understood so as to be reduced into groups, their mode of growth must be fully investigated; and it will then perhaps become evident what points, from their greater permanency, are to be relied upon for general as well as specific characters.

The author had already traced the mode of growth of the British fruticose Rubi, in a paper read before the Botanical Society of Edinburgh. The general idea of the *biennial* continuance of the Rubi is incorrect; all are *triennial* by the renewed growth of smaller flowering branches from the barren stems, or the bases of the withered panicles of the second year, or by the barren stems shooting forth a *second* crop of barren stems, which flower the *third* year; and that often the existence of an individual bramble, independently of fresh shoots from the root, is protracted to the fourth or fifth year.

The consequence of this is, that no specific distinction whatever can be drawn from the *inflorescence*, which may be long the second year, and is much shorter the third; while it often happens that when a barren stem becomes prostrate, the panicles of flowers rising from the extreme end, are twice or thrice as long as those nearest the main shrub. This fact of the extended growth of the Rubi has been lost sight of, and hence puzzling productions have been considered as new species, just as the *R. fastigiatus* of Weihe and Nees is but a form of *R. plicatus*, as is now admitted by Essenbeck himself, from its exhibiting a smaller growth of third year's flowers.

Undoubtedly the *barren stem* offers the best, if not the only plan of discrimination in subdividing the Rubi into groups, especially if we take into consideration, in combination with it, the *erect* or *arched* mode of growth and continuance of vitality. The leaves are so exceedingly variable, in shape, size and hoariness, as to be almost useless in this respect. A table was appended to the paper, by which was seen at a glance what the differences really were by which groups could be defined; and it would appear, in fact, that these resolve themselves almost entirely into the perfect smoothness, glaucosity, or more or less of hairiness and glandulosity of the barren stems.

Commencing then with *Rubus cæsius* and ending with *R. Idæus*, it will appear that *seven* groups are easily separable from each other, and passing from one into the other, in a very natural manner. These, at all events, may be considered the smallest number of species into which the Rubi can be classed, without confounding really different things, while if we proceed further into minuter distinctions, these typical forms will become groups, under which the various varieties, species, or sub-species of each, will be referable.

1. *Cæsi*. — Having the barren stem round, bloomy, covered with unequal prickles, trailing, rooting. *Rubus cæsius* and its various derivations.
2. *Glandulosæ*. — Barren stem angular, hairy and prickly, setose, very glandular, arched or trailing, rooting. This group will include *R. radula* of Weihe and Nees, *R. Koehleri*, *fusco-ater*, &c.
3. *Villicaulæ*. — Barren stem angular, very hairy, but without glands, prickly, arched or decumbent, rooting. Including *R. villicaulis*, W. & N., *R. leucostachys*, Smith, &c.
4. *Fruticosi*. — Barren stem angular, glaucous, prickly, arching, rooting. Including *R. fruticosus* and *discolor*.
5. *Nitidi*. — Barren stem angular, almost smooth, with few prickles, rooting rarely. *R. affinis*, *nitidus*, *rhamnifolius*, &c.
6. *Suberecti*. — Barren stem angular, very smooth, nearly erect, not rooting. Including *R. suberectus*, Anderson and Smith, *R. plicatus*, W. & N., and *R. fissus*, Lindley.
7. *Idæi*. — Barren stem round, downy, covered with innumerable, small, dilated prickles, erect. *R. Idæus* and varieties.

There is, however, it must be admitted, an anomaly in the first group, which can only be got over by subdividing it into two (as done in the tabular view), for the excessively glandulose assurgent stem of *Rubus dumetorum* has a very different aspect from the prostrate bloomy one of *R. cæsius*; and yet it is demonstrable that the former is really derivable from the latter: so that although the blue berries of the dewberry would at first sight appear so discriminative, varieties arise with fruit altogether of a different aspect. It must be borne in mind, however, that this is in a great degree in accordance with the well-known laws of cultivation. *Rubus dumetorum* is *R. cæsius* excessively developed in *leaves* and *flowers*, but the fruit is mostly abortive or imperfect, while *R. cæsius*, in its normal prostrate form, with thin foliage and small flowers, produces on the humid ground the finest fruit of any of the fruticose Rubi.

The first group — *Cæsi* — must therefore be necessarily divided into two; but the other groups will be found to maintain the characters assigned them pretty correctly, and may therefore be depended on. It is true that occasionally some of the *Villicaulæ* will exhibit a few glands on their stems or panicles, under circumstances of great luxuriance of growth or exposure, but nothing to be compared with the excessive degree of glandulosity of the *Glandulosæ*. Then it is true that the barren stem of the second group of *Cæsi* is nearly as glandular as in the *Glandulosæ*, but the former will show their affinity with *R. cæsius* by the calyx being *involute* on the fruit, not *reflex* as in the latter.

The *Fruticosi* always preserve an independent marked character; and the *Nitidi*, if, in one of their forms—*R. affinis*—coming near to the *Suberecti*, may yet be always well distinguished by the arching barren stem, which, when exposed, is very stiff and rigid in the latter, almost as much so as in *R. Idæus*. This is well observable in the barren moors of North Wales.

Sketches of the barren stems of the different groups were exhibited. That the forms of each group sort into each other according to situation and exposure, without much limitation, is highly probable, but Mr. Lees had met with no decided cases of hybridity. Specimens of various species accompanied the paper, and are deposited in the Society's herbarium.—*G. E. D.*

THE PHYTOLOGIST.

No. XXVII.

AUGUST, MDCCCLIII.

PRICE 1s.

ART. CLVI—*Researches in Embryogeny.* By W. WILSON, Esq.
(Continued from p. 628).

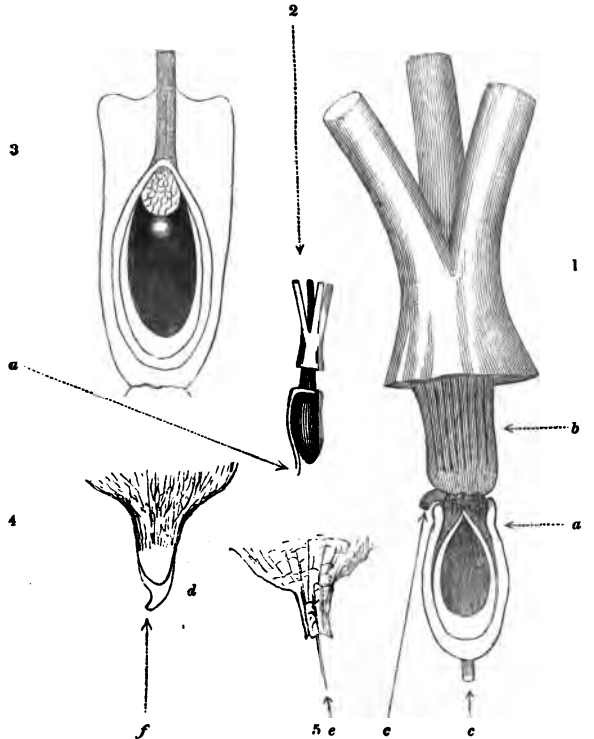


Fig. 1. Section of ovulum (a) of *Statice Armeria*, with the secundine adhering to the cellular body (b) proceeding from the base of the styles. The position of the funiculus, c, c, is also represented in this figure—portions of three of the styles are seen. The carpellary integument is dissected away to show the ovulum and its suspensor prior to fecundation.

Fig. 2. Another view of the ovulum with its funiculus (a) and suspensor, previous to fecundation, less magnified.

Fig. 3. Section of germen soon after fecundation, showing the rudimentary embryo.

Fig. 4. Apex of the cellular body, or suspensor, showing the vesicular portion (d) and tubular extremity (f) at the period of fecundation.

Fig. 5. Cellular body as seen after the time of fecundation, with the hair-like projection (e), magnified about 300 times.

IN Lindley's Natural System, edition 2, there is an interesting account of the ovulum of *Plumbagineæ*, which however is not quite accurate—instead of the ovulum in *Statice Armeria* having its foramen

covered by the strap-like funiculus previous to fecundation, and the funiculus subsequently pushed aside by the protrusion of a cellular body proceeding from the base of the styles, I find that previous to the expansion of the flower this cellular body is intimately united to the apex of the secundine of the ovulum, and remains thus attached until fecundation is effected, (see fig. 1 and 2): consequently the funiculus, in every stage, occupies a lateral position. At the exact period of fecundation there is reason to believe that the cellular body penetrates the apex of the nucleus by a very minute aperture; because when the embryo just becomes visible within the nucleus at its apex (suspended from a mass of spongy cellular tissue), there is sometimes to be seen a hair-like process terminating the cellular body (now dis-united from the secundine, and by its shrinking, at some distance above it) as though a pollen-tube had passed down from above into the nucleus. Those who hold the views of Schleiden will find the appearances extremely plausible, (see fig. 5). The cellular body, as it appears at the time of fecundation (see fig. 4) is such as to induce the supposition that the vesicular body (*d*) may be the origin of the embryo, and may also perhaps be the bulbed extremity of a pollen-tube; but this is at variance with all that I have yet witnessed in other tribes. The part marked *f* (magnified about 300 times) appears to be the truncated extremity of a tube which may have been continued into the nucleus, the apex of which consists of loose cellular tissue, and may have a very minute aperture; but this, as well as the aperture of the secundine, can be very imperfectly made out by actual observation. That the hair-like process of the cellular body (fig. 5) has in some way penetrated into the nucleus is almost certain, and need not be disputed.

At fig. 3, the embryo is shown as it appears shortly after fecundation. The upper body within the nucleus is a mass of spongy cellular tissue, and the roundish body below is the embryo, with its two wide-spreading lobes (not seen in the figure from its position), which form the cotyledons when the embryo has filled up the cavity of the nucleus. Previous to fecundation the nucleus has no trace whatever either of the embryo or of the cellular tissue from which it is suspended. It constitutes the albumen of the perfect seed, and is much thickened towards the lower part.

Plants belonging to the order Plumbagineæ are remarkable for having five styles or pollen-ducts and only one ovulum. Assuming that the embryo is formed by the extremity of a pollen-tube, what is to prevent the occasional presence of two or more embryos in the ovulum?

Such of the readers of 'The Phytologist' as have not seen an article in the 'Microscopic Journal' (ii. 138), by Herbert Giraud, M.D., 'On the origin and development of the embryo in *Tropæolum majus*,' will do well to consult it. W. WILSON.

Warrington, July 7, 1843.

[We give below Dr. Giraud's article from the 'Proceedings of the Linnean Society,' where it originally appeared.—*Ed.*]

"After referring to the researches of MM. Schleiden, Wydler, Mirbel and Spach, and A. St. Hilaire, on this important point, Dr. Giraud states that he was induced to select *Tropæolum* as the subject of his own observations, on account of its solitary ovula, and their comparatively large size, which render the individuals of this family, as well as the allied Geraniaceæ, peculiarly fitted for the purpose. He arranges his observations under seven general heads, corresponding with as many progressive periods in the growth of the female organs, and extending from the completion of the anatropous development of the ovule to the perfect formation of the embryo; or from the commencement of the expansion of the bud to the complete formation of the fruit. The results are collected from a great number of dissections.

"In the *first* period, or just before the expansion of the bud, a longitudinal section of the carpellum from its dorsum towards the axis of the pistillum, dividing the ovule, shows the latter to have completed its anatropous development. A portion of rather firm and dense cellular tissue, enclosing a bundle of vessels, descends from the placenta and in apposition with it to form the raphe, and terminates in the base of the ovule. The nucleus has only one integument, at the apex of which is the exostome or micropyle, opening close by and to the outside of the point of attachment; and the conducting tissue of the style may be traced into the carpellary cavity as far as the exostome.

"In the *second* period, during which the expansion of the bud and the dehiscence of the anthers commence, and therefore, before impregnation, a small elliptical cavity makes its appearance near the apex of the nucleus, having a delicate lining membrane formed by the walls of the surrounding cells: this cavity is the embryo-sac, and a minute canal may be traced leading from it to the exostome. The apex of the embryo-sac encloses at this period a quantity of organizable mucilage, containing many minute bodies, having the appearance and character of cytoblasts.

"In the *third* period, the apex of the nucleus and of its integument, becomes slightly inclined towards the placenta. The embryo-sac is much enlarged and lengthened; its mucilage has disappeared and given place to an elongated diaphanous utricle (*utricule primordiale*, Mirbel; *vésicule embryonnaire*, Meyen; *extrémité antérieure du boyau pollinique*, Schleiden) containing a quantity of globular matter or cytoblasts. This primary utricle is developed wholly within the embryo-sac, from which it is obviously distinct.

"The *fourth* period occurs after impregnation. The pollen tubes do not extend into the carpellary cavity; but the fovilla, with its granules, is found abundantly in the passage leading from the style to the exostome. With the increased development of the embryo-sac, the primary utricle elongates and becomes distinctly cellular, by the development of minute cells in its interior, while at the extremity next the base

of the nucleus it is terminated by a spherical mass consisting of globular cells. The primary utricle at this period assumes the character of the suspensor (Mirbel), and its spherical extremity constitutes the first trace of the embryo.

"In the *fifth* period, the apex of the nucleus and of its integument becomes more inclined towards the placenta; the spherical extremity of the suspensor enlarges, and it becomes more evident that it constitutes the rudimental embryo. In the mean time the suspensor has become lengthened by an increase in the number of its cells; and its upper extremity is found to be protruded through the apex of the embryo-sac, the apex of the nucleus and the micropyle. From this extremity there is a considerable development of cells, many of which hang loosely in the passage leading to the conducting tissue of the style, while the rest unite in forming a process which passes down the outer side of the ovulum within the carpellary cavity. This process is composed of from nine to twelve rows of cells, and its extremity resembles in appearance and in the anatomical condition of its cells the spongiole of a root. By a slight traction of this cellular process, the suspensor with the embryo may be withdrawn from the embryo-sac through the exostome, thus proving the continuity of the process with the suspensor, and through it with the embryo itself.

"During the *sixth* period the suspensor becomes more attenuated; and the cellular process has reached the base of the ovulum, the cells of its extremity abounding with cytotlasts, which prove that it is still progressing in development. The embryo also increases in size, and two lateral processes are observed, which evidently form the first traces of the cotyledons.

"In the *seventh* period, all distinction between the nucleus and its integument ceases, and they form a single envelope enclosing the embryo-sac; the cellular process has become so much developed, that its extremity has passed round the base of the ovulum and is directed towards the placenta; and the lateral processes of the embryo have become distinct fleshy cotyledons, enclosing both the radicle and plumule in corresponding depressions of their opposed surfaces. The subsequent changes consist chiefly in the great development of the cotyledons, which ultimately occupy the entire cavity of the nucleus, filling the space usually taken up by albumen.

"From these observations Dr. Giraud deduces the following inferences.

"The formation of the embryo-sac, and the development of cytotlasts within it, having been shown to take place at a period prior to impregnation, and even the primary utricle itself making its appearance before the emission of the pollen from the anther, and before the expansion of the stigma, the origin of the primary utricle cannot be referred to the influence of impregnation, nor can it have been derived from the pollen tube pressing before it a fold of the embryo-sac.

"The primary utricle at its first formation being quite distinct from the embryo-sac, even at its apex (although brought into contact with it at a subsequent period, and ultimately penetrating it), cannot result from a depression or involution of the embryo-sac, as is maintained by M. Brongniart.

"The pollen tubes (which after impregnation may be traced in the conducting tissue of the style) never reaching the micropyle, but pollen granules being found in abundance in the channel leading to it, and being doubtless brought into contact with the outer surface of the embryo-sac through the exostome; and the first trace of the embryo appearing at this time in the formation of the spherical body at the inferior extremity of the primary utricle—Dr. Giraud is led to conclude that the origin of this simple spherical body results from a peculiar process of nutrition, determined by the

material or dynamic influence of the fovilla, conveyed through the medium of the primary utricle or suspensor.

"The paper was accompanied by a series of drawings representing the ovulum of *Tropæolum* in the several stages of development described."—*Proceedings of the Linnean Society*, February 1, 1842: p. 123.

ART. CLVII. — *List of the Cryptogamic Plants of Oxfordshire.**

By PH. B. AYRES, Esq., M.D.

Thame, May 18, 1843.

SIR,

I inclose you a list of the Cryptogamic Flora of Oxfordshire, as far as it has been at present examined, compiled from a manuscript list of Mr. Baxter's, with such additions as I have been able to make. It will be seen that very little has been done towards forming a complete list for the county, as most of the localities given are in the immediate neighbourhood of Oxford, and the country towards the northern extremity has had little attention paid to it. I have no doubt that that part of the county would repay the investigation, since in my own neighbourhood I have found two species, which Mr. Berkeley has determined to be new to the British Flora.

I am, Sir,

Your obedient Servant,

PH. B. AYRES, M.D.

To the Editor of 'The Phytologist.'

<i>Phascum subulatum</i> . Shotover hill, Bagley wood, <i>Baxter</i> ; Thame and Stokenchurch range, <i>Dr. Ayres</i> .	<i>Gymnostomum ovatum</i> . Walls &c., common.
—— <i>muticum</i> . On a bank at the N.E. corner of Shotover hill, <i>Baxter</i> .	—— <i>truncatulum</i> . Banks &c., common.
—— <i>cuspidatum</i> . Banks, &c. rather common, Thame, <i>Dr. Ayres</i> .	—— <i>β. intermedium</i> , Hook. Banks, Bagley wood, rare, <i>Baxter</i> .
<i>Sphagnum obtusifolium</i> . Bogs, common, <i>Baxter</i> .	—— <i>pyriforme</i> . Ditch-banks, Thame, abundant, <i>Dr. Ayres</i> .
—— <i>squarrosum</i> . Bogs, Shotover hill.	<i>Tetraphis pellucida</i> . Shotover plantations, <i>Sibthorp</i> .
—— <i>acutifolium</i> . Shotover hill, Bagley wood, <i>Baxter</i> ; Bates' Leys, Thame, <i>Dr. Ayres</i> .	<i>Splachnum ampullaceum</i> . On cowdung, Shotover hill, very rare, <i>Baxter</i> .

* The list, as received from Dr. Ayres, contained also localities of the Ferns; but these, in accordance with our notice (Phytol. 549), and in order that repetition may be avoided, will be given in Mr. Newman's list of the Ferns of Oxfordshire.—*Ed.*

- Encalypta vulgaris*. On an old wall at Headington quarry, and on the wall of the sunk fence, Shotover plantations, *Baxter*.
- Weissia lanceolata*. Walls and banks, Shotover hill, South Hinkley, *Baxt*.
- *curvirostra*. Shotover hill, *Sibthorp*.
- *controversa*. Banks, Shotover hill, 1833, *Dr. Ayres*.
- Grimmia apocarpa*. Walls near Oxford, common, *Baxter*; rare at Thame, *Dr. Ayres*.
- *pulvinata*. Abundant on walls and tiles.
- Didymodon purpureus*. Banks, walls &c., common; Thame, *Dr. Ayres*.
- Trichostomum canescens*. Heaths, Shotover hill, *Sibthorp*.
- Dicranum bryoides*. Shotover hill, &c., *Baxter*.
- *adiantoides*. Moist shady places, *Baxter*.
- *taxifolium*. Moist shady places, common.
- *glaucum*. Ensham heath, *Sibthorp*; Bagley wood, *Baxter*; very rare.
- *cerviculatum*. Shotover hill, *Baxter*.
- *flexuosum*. Shotover hill, *Baxter*; Stokenchurch woods, *Dr. Ayres*.
- *undulatum*. Shotover hill, *Baxter*.
- *Scoparium*. Shotover hill, Bagley wood, *Baxter*; Stokenchurch woods, *Dr. Ayres*.
- *heteromallum*. Banks, Shotover hill, Stokenchurch woods, &c.
- Tortula rigida*. Walls and banks, very common, *Baxter*.
- *convoluta*. Moist banks, *Baxter*.
- *muralis*. Walls &c., exceedingly common.
- *ruralis*. Walls, roofs &c., very common.
- *β. laxipila*, Hook. Thame, *Dr. Ayres*.
- Tortula subulata*. Shotover hill &c.; Stokenchurch woods, *Dr. Ayres*.
- *unguiculata*. Very common.
- *fallax*. Walls, banks, &c., *Baxter*.
- Cinclidotus fontinaloides*. In the Isis, *Sibthorp*.
- Polytrichum undulatum*. Shotover hill, *Baxter*; Stokenchurch woods, &c., *Dr. Ayres*.
- *piliferum*. Shotover hill, *Baxter*.
- *juniperinum*. Shotover hill, *Baxter*.
- *commune*. Shotover hill, Bagley wood, &c., common.
- *aloides*. Shotover hill, Bagley wood, *Baxter*.
- *nanum*. Shotover hill, Bagley wood, *Baxter*; Stokenchurch woods, *Dr. Ayres*.
- Funaria hygrometrica*. Banks, walls &c., common.
- Orthotrichum anomalum*. Trees, rocks, walls, Oxford, *Baxter*; Thame, *Dr. Ayres*.
- *affine*. Trees near Oxford, *Baxter*; Thame, *Dr. Ayres*.
- *striatum*. Trees, *Baxter*.
- *Lyellii*. Bagley wood, *Baxter*; Stokenchurch woods, *Dr. Ayres*.
- *crispum*. Bagley wood, *Baxter*; Stokenchurch woods, *Dr. Ayres*.
- *pulchellum*. Bagley wood, *Baxter*; Penleigh Holms, *Dr. Ayres*; very rare.
- Bryum palustre*. Bogs, Bullington green, *Baxter*.
- *carneum*. Ditch-banks, Bullington green, *Baxter*.
- *argenteum*. Very common.
- *roseum*. Shotover hill, *Baxter*.
- *capillare*. Banks, heaths &c., *Baxter*.
- *cæspitium*. Walls &c., very common.
- *turbinatum*. Wet sandy places near the N.E. corner of Shotover hill, *Baxter*; bog near Thame, *Dr. Ayres*.

- Bryum nutans*. Shotover hill, *Baxter*; Thame, abundant, *Dr. Ayres*.
- *punctatum*. Shotover plantations, rare, *Sibthorp*.
- *ligulatum*. Moist places, common.
- *rostratum*. Shotover plantations, very rare, *Baxter*.
- *hornum*. Shotover hill, Bagley wood, *Baxter*.
- *cuspidatum*. Shotover plantations, *Baxter*.
- Bartramia pomiformis*. Heaths, rare, *Baxter*.
- *fontana*. Bogs, Shotover hill, Bullington green, *Baxter*.
- Pterogonium Smithii*. Stokenchurch woods, *J. Oglander, Esq.*; I have not met with it, *Ph. B. Ayres*.
- Neckera pumila*. Bagley wood, *Baxter*.
- *crispa*. Stokenchurch woods, *Baxter*; I have found it only on the right side of the road as you ascend Stokenchurch hill, on stumps of trees and on the ground, but never in fruit, *Ph. B. Ayres*.
- Anomodon curtipendulum*. Bagley wood, rare, *Baxter*.
- *viticulosum*. On stumps of trees and on the ground, common, but rare in fruit.
- Daltonia heteromalla*. Shotover plantations, Bagley wood, *Baxter*; neighbourhood of Thame, but sparingly, *Dr. Ayres*.
- Leucodon sciuroides*. Trunks of trees, *Baxter*.
- Fontinalis antipyretica*. Cherwell and Isis, *Baxter*.
- Hypnum trichomanoides*. Shotover hill and plantations, Bagley wood, *Baxter*.
- *complanatum*. Shotover hill, Bagley wood, *Baxter*; Stokenchurch woods, *Dr. Ayres*.
- *riparium*. Wood and stones, in water, *Baxter*.
- *denticulatum*. Bagley wood, very rare, *Baxter*.
- Hypnum serpens*. On trees, pales, &c., common.
- *murale*. Walls of Botanic Garden, Oxford, *Baxter*.
- *purum*. In grassy places, common.
- *Schreberi*. Stokenchurch woods, *Dr. Ayres*.
- *plumosum*. Shotover hill, rare, *Sibthorp*.
- *sericeum*. On trees &c., very common.
- *lutescens*. On banks, trees, &c., *Baxter*.
- *alopecurum*. Shaded banks, *Baxter*; Kingston, *Dr. Ayres*.
- *dendroides*. Shotover hill, near Stow wood, *Baxter*.
- *curvatum*. Shotover plantations, Bagley wood, *Baxter*; Stokenchurch woods, *Dr. Ayres*.
- *splendens*. Shotover hill and plantations, Bagley wood, *Baxter*; Stokenchurch woods, common, *Dr. Ayres*.
- *proliferum*. Shotover hill and plantations, Bagley wood, *Baxter*; Stokenchurch woods, abundant, *Dr. Ayres*.
- *pralongum*. On decaying trees, &c., *Baxter*.
- *abietinum*. Headington quarry, Shotover hill, very rare, *Baxter*.
- *piliferum*. Shotover hill, rare, *Baxter*.
- *rutabulum*. Very common.
- *velutinum*. Very common.
- *ruscifolium*. On stones &c. in water, near Oxford, *Baxter*; Thame, *Dr. Ayres*.
- *striatum*. Bagley wood, *Baxter*; Stokenchurch woods, *Dr. Ayres*.
- *cuspidatum*. Moist places, common.
- *cordifolium*. Bogs, Shotover hill, Bagley wood, *Baxter*; in a ditch in Old Town meadows, Thame, *Dr. Ayres*.

- | | |
|--|--|
| <i>Hypnum stellatum</i> . Bogs under Bulling
ton green, <i>Baxter</i> . | <i>Hypnum filicinum</i> . Bogs, <i>Baxter</i> . |
| —— <i>loreum</i> . Shotover hill, <i>Baxter</i> ;
Stokenchurch woods, abundant, <i>Dr.</i>
<i>Ayres</i> . | —— <i>fluitans</i> . Shotover hill, <i>Baxter</i> . |
| —— <i>triquetrum</i> . Heaths &c., com-
mon. | —— <i>aduncum</i> . Bogs, Shotover hill,
Bullington green, <i>Baxter</i> . |
| —— <i>brevirostre</i> . Bagley wood, <i>Baxter</i> . | —— <i>cupressiforme</i> . Woods &c., com-
mon; Stokenchurch woods, <i>Dr.</i>
<i>Ayres</i> . |
| —— <i>squarrosum</i> . Shotover hill, Bag-
ley wood, <i>Baxter</i> ; Stokenchurch hill,
<i>Dr. Ayres</i> . | —— <i>γ. tenue</i> , E. B.
Woods &c., <i>Baxter</i> . |
| | —— <i>molluscum</i> . Woods &c.; Sto-
kenchurch woods, <i>Dr. Ayres</i> . |

(To be continued.)

ART. CLVIII. — Notice of 'A Visit to the Australian Colonies. By JAMES BACKHOUSE.' London: Hamilton, Adams & Co. 1843.

(Continued from p. 608).

WELLINGTON Valley appears to be the most inland point reached by our observant traveller. At the end of September 1835 he set out on his return to Sydney, which place he reached on the 30th of the following month. But few botanical observations appear to have been made by the way: we extract the following.

"In the lower altitudes of the mountains the advance of spring was more striking. *Teloepa speciosissima*, forming low bushes, with heads of flowers as large as small peonies, was in full blossom. The Blue-Mountain parrot, partly blue, and with a breast of crimson, as brilliant as the flowers, was drinking nectar out of the blossoms of this splendid shrub; and a brown honey-eater was darting its tongue, like a slender pencil of hair, into the elegant pink flowers of *Grevillea linearis*. *Gompholobium grandiflorum*, a large, yellow, pea-flowered shrub, of great beauty, and several species of *Platylobium*, *Daviesia*, *Boronia* and *Eriostemon*, enlivened the solitude and beguiled the walk, of thirty-one miles, through this dreary forest, which we accomplished in ten hours."—p. 336.

After a visit of some months to Van Diemen's Land, J. Backhouse returned to Sydney on the 22nd of February, 1836; and in company with Mr. MacLeay and other gentlemen, visited a collection of vines, amounting to three hundred varieties, among which, under French names, are most of those cultivated for the table in England. He speaks of the Sydney botanic garden as a fine institution, and furnished with a good collection of native and foreign plants. Remaining but a short time at Sydney, he sailed in the *Isabella* for Moreton Bay, between six and seven degrees further north, that is, in latitude about 27° 20' S. On the 29th of March, while walking a few miles down

the Brisbane river towards a brook called Breakfast Creek, the waters of which are generally brackish at high tide, several remarkable plants were observed.

"On the margins of the brook, *Acrostichum fraxinifolium*, a large ash-leaved fern, was growing, along with *Crinum pedunculatum*, a great bulbous-rooted plant, with white, tubular, lily-like flowers. *Hellenia cærulea*, a reedy-looking plant, with broad leaves and blue berries, and a species of *Phytolacca*, with pretty pink blossoms, were among the brush-wood. By the sides of fresh-water ditches there were a *Jussiaea*, resembling an evening primrose, with small yellow blossoms, and a blue-flowered plant, in figure like a *Pentstemon*. On the grassy slope of the hills, near the river, *Hibiscus Fraseri*, with yellow blossoms, like those of the hollyhock, but having a deep purple eye, was in flower."—p. 359.

And again, a forest, called Three-mile Scrub, visited on the 2nd of April, seems to have been found replete with interest.

"Some of the trees far exceed 100 feet in height, a few may be 150. Among the lofty ones may be enumerated some *Eucalypti*, called iron-bark, forest-mahogany, &c. and three species of fig, with leaves resembling those of laurel or *Magnolia*. One of these, *Ficus macrophylla*, was forty feet in circumference at the greatest height that I could reach: its roots formed wall-like abutments, extending from the tree, over an area thirty feet across. These fig-trees are very remarkable in their growth: they often spring from seeds, deposited by birds in cavities of other trees, at elevations of, perhaps, fifty feet or more. From these situations they send roots down to the ground, which, in their course, adhere to the tree; these again emit transverse or diagonal roots, that fix themselves to others, in their course downward. Those that reach the ground thicken rapidly, still spreading themselves upon the face of the foster tree, which, at length, is completely encased. These gigantic parasites rear their towering heads above all the other trees of the forest, sending out vast limbs, and spreading their own roots in the earth, from which also they sometimes grow, without the aid of other trees to sustain them.

"The trunks and limbs of these, and other trees, support several species of fern, and some epiphytes of the *Orchis* tribe, with fleshy leaves, and singular stems and flowers. Numerous climbing plants, with stems varying in thickness, from that of packthread to that of a man's body, ascend into their tops, and send down their branches in graceful festoons. Among the slenderer climbers were two species of passion-flower and one of jasmine. The most gigantic climber, which might properly be called a climbing tree, belonged to a race of plants called *Apocynæ*: it had rugged bark, and sometimes formed a few serpent-like wreaths upon the ground before ascending, and spreading itself among the tops of the other trees. There were also three species of *Cissus*; one of them with simple, and the other two with trifoliate leaves: these are kinds of vine, bearing grapes, about equal in size to English sloes, but sweeter. The fruit of the figs is rather dry, but it is eaten by the native blacks and by numerous birds. The Moreton Bay chesnut, *Castanospermum australe*, is a fine tree, with a profusion of flame-coloured blossom, and with leaves like those of the European walnut. Some of its pods are ten inches long and eight round; they contain several seeds, in size and colour resembling horse-chesnuds, but, in flavour, between a Spanish chesnut and a fresh-ripened bean, with a slight degree of bitterness. The blacks roast them, and soak

them in water, to prepare them for food. *Acrostichum grande*, one of the ferns that grow on the trees, is as large as a full-grown Scotch cabbage, and is remarkably beautiful. *Caladium glycyrrhizon*, a plant allied to the Arum, and one of the race called Tara, the roots of which afford food to the islanders of the Pacific, abounds in these woods. The root is beaten and roasted by the aborigines, till it is deprived of its acrimony; it is then eaten, and is said to be pleasant to the taste. In the margins of the woods, and on the banks of the rivers, the climbers are also numerous, and very beautiful. Among them are *Tecoma jasminoides*, a large, white trumpet-flower, with a rosy pink tube, and *Ipomœa pendula*, before noticed as bearing elegant, pink, convolvulus-like blossoms. In the grass of the open ground is a remarkable climbing nettle, and in the forests, the giant nettle, *Urtica gigas*, forms a large tree. Many of the hills in this neighbourhood are dry, and covered with quartzose gravel. On these, the trees are chiefly of the genera *Eucalyptus*, *Tristania*, *Casuarina* and *Acacia*. In the basaltic soils *Altingia Cunninghamii*, the Moreton Bay pine, is interspersed; and in some places, further into the interior, it forms large woods."—p. 361.

On the 4th of April our traveller visited Eagle Farm, a settlement six miles from Brisbane Town towards the mouth of the river of the same name. On the way he noticed a beautiful *Pavonia*, with a rosy purple blossom, shaded deeply towards the centre; also a splendid *Loranthus*, with foliage like that of a lemon, and clusters of crimson tubular flowers tipped with yellow. The beautiful blue *Ipomœa hederacea* was also in blossom.

"In a wood, on the margin of the river, a few miles above Brisbane Town, I met with a species of lime, *Citrus*, having small diversified leaves, and fruit the size of a walnut; it formed a tree fifteen feet high. *Flindersia australis*, *Oxleya zanthoxyla*, and *Cedrella Toona*? trees of the same tribe as the mahogany, attain to a large size in these forests. *Oxleya zanthoxyla* is the yellow wood of Moreton Bay: one I measured, was forty feet round at about five feet up: it was supposed to be one hundred feet high. The *Cedrella* is the cedar of N. S. Wales; the wood of which resembles mahogany, but is not so heavy. The silk oak, *Grevillea robusta*, also forms a large tree: its foliage is divided, like that of some Umbelliferous plants; its flowers are somewhat like branched combs, of crooked yellow wire, shaded into orange, and are very handsome. *Hoya Brownii*, and *Jasminum gracile*? were abundant on the bank of the river, along with *Tecoma jasminoides*, and many other curious and beautiful climbing shrubs. Eleven epiphytes, of the *Orchis* tribe, were growing on the trunks of the trees in the forest. Most of these were of the genera *Dendrobium*, *Cymbidium* and *Gunnia*. Some bananas, which had been washed from a place in the limestone country above, where sheep, for the provision of the settlement, are kept, had established themselves on the borders of a creek. Pumpkins were growing among the brushwood, in great luxuriance. The last were observed, with evident pleasure, by my boat's crew of prisoners, who anticipated making a meal of them, at a future day. They are much used as a table vegetable, in New South Wales, and are certainly to be valued as such, in this climate; they keep well, and are a good substitute for potatoes, or for turnips, by land or by sea."—p. 364.

The forest about the Pilot's station, situated at the north point of Stradbroke Island, consists of *Eucalyptus*, *Melaleuca* and *Banksia*,

mixed with the cypress pine, *Callitris arenosa*; and the sand on the shore was bound together by maritime grasses, the large yellow-flowered *Hibbertia volubilis*, and *Ipomœa maritima*, with its large, pink, convolvulus-like flowers, and curious two-lobed leaves. On the muddy land within the reach of high tides, were a species of mangrove and a *Bruguiera*.

"The mangrove resembles a thick-leaved laurel, and has roots from its stem above ground, like the stays of the mast of a ship: its fruit is about an inch in diameter, and it vegetates as it hangs on the bush, and sends out a green radicle, about a foot long, and swollen toward the pointed base; this, bearing the germ on its top, drops from the fruit, and either sticks in the mud and vegetates, or floats in the sea, till landed on some congenial spot, or till it perishes. The *Bruguiera* forms a fine bush, eight or ten feet high, and has the bell-shaped cup to its evanescent petals in substance resembling red morocco leather, and cut into ten narrow segments. Its mode of propagation is similar to the former, but its radicle is shorter, and not swollen towards the base. These gay, red-leather-like flowers, and long, green, spindle-like radicles, were washed up abundantly on the shore, and till I saw them growing, they puzzled me not a little."—p. 375.

On Moreton Island the same plants occurred, together with a *Scævola*, with brilliant blue flowers and black berries. In the sandy places more inland, "*Pandanus pedunculatus*, a species of screw pine, forms a singular tree, fifteen feet high. Its leaves resemble those of the pine-apple; its fruit is as large as a child's head, yellow, and composed of clustered oblong nuts, fleshy at the base, which separate in attached groups when ripe. The fleshy part is eaten by the blacks; but it has an unpleasant smell, and though sweetish, is rather acrid. The trunk is supported securely by roots, that descend from various parts of it, into the sand, and are as thick and straight as broom-sticks; they look rather like the stays of a ship." Some steep sand hills "were overgrown by *Myrtus tenuifolia*, a myrtle of low stature, with narrow leaves, and sweet, aromatic, white berries, spotted with purple. These are the most agreeable native fruit I have tasted in Australia; they are produced so abundantly as to afford an important article of food to the aborigines." Near the east coast was a yellow *Crotalaria*, and three species of ferns, *Lygodium microphyllum*, *Pteris esculenta* and *Blechnum cartilagineum*.

At Newcastle, where he appears in the first instance to have been driven by stress of weather, on his return to Sydney from Moreton Bay, our traveller observed that many open places in the forests abounded with gigantic lily, from ten to twenty feet in height. The stems of this plant, at a foot and a half high, are thicker than a man's arm; they are roasted and eaten by the natives. The roots of this

lily are also roasted, made into a sort of cake, and eaten cold by the natives: "they likewise roast and pound the seeds of *Zamia spiralis*, and then place the mass for two or three weeks in water, to take out the bitter principle, after which it is eaten." At Maitland, forty miles from Newcastle, by the Hunter river, some of the trees were clothed with shaggy lichens, and supported the golden mistletoe: and "the elk's-horn fern, *Acrostichum alcicorne*, which in Port Jackson generally grows on decomposing sandstone rocks, forms here protuberant girdles round the trunks of trees, among the branches of which *Ipomœa pendula* and *Marsdenia fragrans* are striking climbers." Still further up the Hunter River, *Kennedia ovata*, a species of *Tecoma*, *Sicyos australis*, *Nicotiana undulata*, a species of *Cannabis*, and several other striking plants were growing on the banks. In the adjacent woods, called cedar-brushes, from the occurrence of *Melia Azederach* or the white cedar, *Eugenia myrtifolia* and *Ficus Muntia* were observed. "The former resembles a large broad-leaved myrtle, and attains to twenty feet in height; its fruit, which is now ripe, is about the size of a cherry, but oblong and purple, with a mixture of sweet and acid. *Ficus Muntia* is a spreading fig, growing as large as an apple-tree. Where its branches touch the ground, they root, and send up erect shoots, forming a succession of trees. The insipid fruit, which is about the size of a gooseberry, is sometimes produced from the bare trunk and boughs, as well as from the leafy branches, giving the tree a very unusual appearance. These cedar-brushes are also thick with climbers, such as *Cissus antarctica*, the kangaroo vine, *Eupomatia laurinae*, a briary bush allied to the custard-apple, but with inferior fruit, and several *Apocynæ*."

Near Raymond's Terrace, where there is a manufactory of earthenware,—

"*Sarcostemma australe*, a remarkable leafless shrub, with green, succulent, climbing stems, as thick as a quill, and bearing clusters of white flowers, resembling those of a *Hoya*, was growing on some rough conglomerate rocks. In the more fertile spots, by the sides of brooks, there was a species of yam, the root of which is eaten by the aborigines, as well as *Eugenia trinervis*, and another shrub of the myrtle tribe, and *Logania floribunda*, a privet-like bush, with small, white, fragrant blossoms. The country toward Port Stephens, whither we next proceeded, was decorated with *Acacia longifolia*, and some others of that genus, with lively yellow flowers, and with *Bursaria spinosa*, which is fragrant and white, *Lambertia formosa*, a stiff bush, with beautiful deep crimson flowers, and *Dillwynia parvifolia*, with pretty orange blossoms."—p. 399.

At Port Stephens, *Swainsonia galegifolia*, a low suffrutescent bush, with white or pink pea-flowers, was remarkably pretty. A little fur-

ther to the north, on the Wilson river, near Port Macquarie, the brushes are very magnificent.

"The trees, some of which are of gigantic size, are overrun with climbing, ever-green shrubs, twisted about them in fanciful coils, or wreathed around them like huge serpents, or hanging from them like ropes; their leafy tops being enlivened by gay and fragrant blossoms, and often hanging pendent to the ground, which is covered thickly with beautiful shrubs, ferns, and flowering plants, nourished by the moisture of the rich alluvial soil, and kept from the parching influence of the sun by the exuberant foliage. Mosses, epiphytes of the Orchis tribe, and splendid ferns, as well as various species of fig-tree, support themselves on the trunks and branches of the larger timber, and add greatly to the richness of this kind of forest scenery; among which, gay parrots, cockatoos, and other birds, unlike those of our native land, sport and chatter in harmony with the rest of the surrounding objects, which are strongly calculated to remind an Englishman that he is far from home, even though he may have made this his adopted country."—p. 408.

The neighbourhood of Port Macquarie is rich in the diversity of its vegetation, and the whole of the following passage is so replete with interest, that we feel confident it will prove acceptable to our readers.

"The vegetation here is very striking. On our return to Port Macquarie, we noticed a shrubby, white-flowered *Helichrysum*, two species of *Cassia*, *Tasmania insipida*, *Ficus microphylla*, *ferruginea*, and another species, *Hibiscus splendens*, with blossoms six to nine inches across, *Hibiscus heterophyllus*, and a shrub with white flowers, allied to *Sida*, but of a distinct genus, having five red glands at the base of the common filament, also a singular climbing plant belonging to the *Aroideæ*, adhering to the trees, along with *Dischidia nummularia*, *Polypodium quercifolium* and *attenuatum*, *Dendrobium tetragonum*, *linguiforme*, *æmulum* and *calamifolium*. In some places the country is undulating and grassy. It is adapted for horned cattle, and suffers less from drought than many other parts of N. S. Wales.

"9th. I took a walk into the wood, on Tacking Point, on the coast south of Port Macquarie. The road from Lake Cottage lay through the Cathi Marsh, part of which was crossed by a long and imperfect bridge of logs. *Blandfordia grandiflora* decorated some of the open forest, in which several of the gum-trees were supporting a variety of parasitical figs. A grass-tree swamp intervened between the bridge and the shore. On the borders of the swamp, where the ground was sandy, with a small mixture of vegetable matter, several species of *Boronia*, *Epacris*, and *Euphrasia*, were in flower, along with *Sowerbæa juncea*, a handsome *Comesperma*, a species of *Sprengelia*, &c. On the drier sand hills there were *Banksia serrata* and *spinulosa*, *Platylobium formosum*, *Røperia piniifolia*, a species of *Pultenæa* which formed dense patches, and *Kennedia ovata* and *rubicunda*, &c. Close upon the coast, *Pandanus pedunculatus* was of inferior growth to that at Moreton Bay. In a marsh at Tacking Point, chiefly occupied by *Melaleuca paludosa*, and bordered by a large, silver-flowered, willow-leaved *Helichrysum*, *Todæa africana*? had become arborescent, and formed a beautiful tree-fern, with fronds six feet long, on a trunk three feet high. It was growing with an *Alsophila*, the trunk of which was much slenderer than that of the *A. australis* of V. D. Land, and with a large *Crinum* and *Caladium glycyrrhizon*. In the forest, there were many noble trees, similar to those in the neighbouring woods, but

here they were intermingled with abundance of *Seaforthia elegans*, a noble, feather-leaved palm, forty feet in height. The small palm already noticed was also here, and a tall Cyperaceous? plant, growing into the trees, and again bending toward the ground, with a stem as thick as a ratan. One of the parasitical figs had sent a root down from a lofty bough, remote from the trunk, and the root, which must have swung like a rope, had a diagonal direction, and was adhering at its lower extremity to the foster tree! Some *Casuarinæ* were encircled by masses of *Acrostichum alciorne*. This fern retains much moisture in its dead sterile fronds, which form large scales, rising one over another, it generally grows on the upper portion of the trunks of the *Casuarinæ*, and in stormy weather, they are sometimes thrown down by the weight of water and vegetable matter, thus accumulated about them. Many thus circumstanced were lying in the forest, having a profusion also of *Davallia pyxidata* growing out of the masses of *Acrostichum alciorne*. Other trees, ferns, and flowering plants, were here in great variety.

"Whilst admiring the rich profusion of the vegetable productions, and conversing with some wood-cutters, I insensibly got turned round, and toward evening, on referring to my compass, found myself making rapid progress in a direction opposite to the one I ought to have pursued. What gave to this place the name of Tacking Point I know not, but its name harmonized with my present circumstances; and to use a sea phrase, I 'tacked' without delay, being desirous to escape from the dense forest before sun-set.

"I had become hungry, and looked longingly to the tops of the majestic palms, without the hope of reaching one of them; but at length, I came to one, which, from some accident, had turned its head downward, so that it seemed to be put exactly into my path. I cut it off, stripped away the base of the leaves, to the tender heart, and went along, enjoying my grateful meal, thankful to Him who had brought me and the crooked palm, as by accident, into contact. The supply was so ample, that when I reached my friends at the Lake Cottage, after a toilsome journey through the marsh, in the dark, I had a piece, as thick as my wrist, and a foot and a half long, under my arm, reserved for supper, in case I should have found it impracticable to reach my quarters, and have been under the necessity of remaining under the bushes of the sand hills, on the coast, during the night.

"Among the sedgy plants in the margin of Lake Innis, there is a large species of *Eriocaulon*. Several other species of this genus occur in N. S. Wales, and one in the west of Scotland,* but its maximum is in America. Plants are subject to a remarkable geographical distribution, which it is very interesting to trace out. The remarkable section of the genus *Acrostichum*, which includes *A. grande* and *A. alciorne*, has at least one species in India, and another in Western Africa. *A. grande* grows to a large size, on trees bordering on Lake Innis. One measured, had the upper or barren fronds three feet across, and as much in height. There were two mature barren fronds, that had strong black nerves, and the same number of fertile ones. From the opposite extremities of the appendages of the latter, the measurement was seven feet. Some of these appendages were of ten ribbon-like divisions, many of which were bifid. The central portion might be compared to a jockey's saddle, attached by the pommel.

* *Eriocaulon septangulare*, found in the lakes and pools of Skye and some of the neighbouring islands; and in Cunnamara, Ireland.—*Ed.*

From this point to the extreme margin, was a foot and a half, and this portion was two feet across. The fructification formed a half-moon shaped patch, under the exterior portion, that extended one foot from the margin, toward the point of the attachment, and was a foot and a half across. A young, white, barren frond, almost circular, was placed in front of the two older ones, to which it was closely pressed. Behind these, there were several dead, spongy, old fronds, that retained much moisture, and were penetrated by numerous spongy roots, such as were also spread behind them, on the bark of the tree that supported this remarkable fern, the colour of which was bluish green, covered with a whitish powder."—p. 410.

(To be continued).

ART. CLIX. — *Varieties.*

335. *Asplenium viride* and *Ham Bridge*. I had long noted Ham Bridge as a spot worthy of a visit, on account of its producing a fern alien to the whole district in which it is situated, (Phytol. 46); so I resolved to make it an object of pilgrimage. I was on foot, and wended my way from Sapey Brook (rendered illustrious by the discoveries of Jabez Allies, Esq.), along the rich valley of the Teme, through meadows clothed with luxuriant herbage, and among cattle fatting for the Smithfield show. As I approached the bridge, the red bricks of which it is built, and the dry and dusty road which passed over it, seemed in no degree to increase the chance of my success: yet on that bridge, facing the road-way and covered with dust, was the identical plant I sought — small indeed, but the species not to be mistaken. The parapet wall of the bridge is unusually high, but by some exertion I contrived to overcome this difficulty, and succeeded in obtaining piecemeal a good view over both the sides. The bridge appears to be of some antiquity, and is robed in many places with ample plants of *Parietaria*; in a few spots, *Asplenium Trichomanes* and *A. Ruta-muraria* have established themselves. I saw two or three small plants of *Polypodium vulgare*, and about as many of *Asplenium viride*. Having resolved not to exterminate the latter plant, and yet being desirous of convincing the most sceptical of my success, I took some little specimens which faced the roadway, leaving others to reward the labours of future pilgrims. — *Edward Newman; Hanover St., Peckham, June 4, 1843.*

336. *Cystopteris montana* a *British Fern*. This beautiful fern, which seems to occur in nearly all the alpine regions of Europe, was discovered by Mr. Wilson in Scotland in 1836. It has generally been

described as an *Aspidium*, but a glance at Schkuhr's figure of the fructification will show that Presl is right in referring it to the genus



Cystopteris montana.

Cystopteris. A specimen, obligingly lent me by Mr. Wilson for my forthcoming reprint of 'British Ferns,' is figured above. — *Id.*

337. *Note on the preservation of Colour in specimens of Plants by immersing them in Boiling Water.* In the Report of Proceedings of the Botanical Society of Edinburgh (Phytol. 189), Mr. Evans is said to have preserved the colour of *Lathræa squamaria*, *Asperula odorata*, &c., by immersing them in *boiling water* for a short time. Mr. Sidebotham tells us (*Id.* 233) that he has tried the experiment, as described by Mr. Evans, and that with him hot water turned *Lathræa squamaria* blacker than when prepared in the usual way. Since Mr. Sidebotham expresses surprise at the experiment failing in his hands, it would be well to know if the waters at Melville Castle be the same as the water in the neighbourhood of Manchester; and if all water at a boiling heat would act in the same way on vegetables, so far as the colouring matter is concerned. For before we can come to any con-

clusion as to the benefit to be derived from the use of hot water in the preparation of botanical specimens, it would be well to know what kind of water we are making use of; for if Mr. Evans or Mr. Sidebotham were to try the experiment with water highly charged with *iron*, and again, with the same kind of plants, make use of water which is highly charged with *lime*, perhaps they would not see the same effect produced. Mr. Evans tells us that plants, after being immersed in boiling water, will dry in nearly one half the time required to dry them in the usual way. It is not stated if the specimens were subjected to the same kind of treatment after their immersion in boiling water, as when they are dried in the usual way. I have tried this experiment, that is, I have gathered specimens at the same time, and at the same place, and put part of them in boiling water for a few seconds, and then placed them in paper to dry. I then placed some in the same state in which I gathered them in the same kind of paper, and changed them at the same time, and in short gave them the same kind of treatment throughout. The result of this experiment was, that the plants which had been immersed in the boiling water, took three times the length of time to dry that those required which had not been in the boiling water. The plant which I tried the experiment on was *Galeobdolon luteum*. I now enclose three specimens of *Asperula odorata*: the one marked No. 1, I dried in the usual way—you will observe it is of a very dark colour: No. 2, I immersed in boiling water, and then dried it—that you will observe is much paler in colour than the plant is in a living state. No. 3, I put in a sheet of paper in the state in which I gathered it, and then placed it on the top of a steam-engine boiler. I let it remain there fifteen minutes, without changing the paper; in this short time I found it to be quite dry: this, you will observe, has by far the best colour of the three. I also enclose two specimens of *Galeobdolon luteum*: the one marked A, I immersed in boiling water for four seconds, and then dried it in the usual way; the other, marked B, I dried as the *Asperula* No. 3, only it took more time—thirty instead of fifteen minutes: the colour of both is very well preserved, but you will see that the one marked B is much the better of the two. A few days ago Dr. Harvey sent me a few specimens of *Pinguicula grandiflora* in a living state; and as I had not seen good specimens of that plant, I resolved to try what I could do in drying them. The first thing I did was to remove as much of the moisture as possible from the leaves. I then took one of the specimens, and placed it on a sheet of soft paper; then I carefully spread each flower, putting on them a piece of common blotting paper. I

next folded up the specimen and placed it in other sheets of paper : all the specimens I put up in the same manner. I then exposed them to a gentle heat for thirty-six hours, and in that time I changed the papers three times ; they were then taken out, and found to be quite dry, with the colour of both leaves and flowers most beautifully preserved. Much might be said on the subject of drying botanical specimens, but structure is what I always wish to see preserved ; and as for colour, I would say that white paper is decidedly the worst that can be used, either for drying plants or keeping them in after they are dried, owing to the extensive use of chlorine in the manufacture of it. The enclosed specimen of *Barbarea stricta* was dried by artificial heat in four minutes, and its colour, you will observe, is not in the least injured. But as I am now taking up too much of your valuable space, I will conclude by saying that Mr. Shepherd, of Mill House, near Halifax, has a method of preserving plants, perhaps known only to himself, which is decidedly the best I have ever seen, so far as colour is concerned. The plan which he adopts is the fixing of their colours by some chemical process, either before or during the progress of drying ; and I hope, before long, to prevail on him to give us the result of his experiments on this subject. The following plants, dried by Mr. Shepherd in the year 1838, are now enclosed ; they will serve to show the merit of his plan in preserving the colours of plants :—*Anagallis arvensis*, *Epilobium angustifolium*, *Listera ovata*, *Orchis latifolia*, *Sagittaria Sagittifolia* and *Myosotis sylvatica*. — *Samuel Gibson ; Hebden Bridge, June 12, 1843.*

[Of Mr. Gibson's specimens, those dried quickly, by means of artificial heat, are by far the most beautiful as regards colour and general appearance ; the foliage of the *Asperula* No. 3 and of *Barbarea stricta*, has a perfectly natural hue, and their flowers appear to be not at all injured for examination. The specimens which had been immersed in hot water, have the least natural appearance of the whole number, and their flowers seem to be much injured. The specimens preserved by Mr. Shepherd, which Mr. Gibson has had the kindness to forward, have the colours of their flowers most beautifully preserved, but, with the exception of *Sagittaria Sagittifolia*, they do not look quite *natural*. This may perhaps arise, in some measure, from their being gummed down to the papers on which they are placed, whereby the petals may have been injured. The *Sagittaria* and *Epilobium* are decidedly the most beautiful of the whole, and *Orchis latifolia* the least so, its flowers being apparently much injured. In a late number of the 'Annals and Magazine of Natural History,' is an article on drying plants by means of paper saturated with a solution of chloride of lime ; this being a deliquescent salt, the moisture of the plants is said to combine with it, and while the paper thus becomes wet, the plants themselves are dried in a short time. After all, the only secrets in the art of preserving specimens of plants for the herbarium, are, to use plenty of paper, and to dry the specimens as quickly as possible, either by means of artificial heat or otherwise, with the application of only just so much pressure as will

prevent their shrivelling. The best specimens of *Ophrys apifera* we have ever seen, were placed in a book, where they remained, in a warm room, unnoticed and forgotten, until chance again brought them to light, perfectly dry, and with the delicate pink hue of the perianth beautifully preserved.—*Ed.*]

338. *Note on the Formation of a Herbarium.* I observed your correspondent's enquiry, regarding the formation of a herbarium, on the wrapper of the March Phytologist, and Mr. King's mode in reply to it in the May number (Phytol. 585). The principal objection which is attached to the latter, in my opinion, is, that it does not present sufficient facilities for the progressive enlargement of the collection; for if it is not completed before the arrangement is commenced, blank pages of the "guard book" must be left in different places for such additions; and these cannot be calculated with any degree of certainty, provided the collector aims at anything like an extensive herbarium, besides having an unfinished appearance, and so many blank leaves being very inconvenient for reference. Mr. K.'s method is an excellent one when arranging a herbarium to which no additions are to be made, as in local herbaria, &c. The plan which I have adopted in arranging a rather extensive collection is the following. In all the best herbaria the specimens are *glued* to the paper; that this is far preferable to securing them by slips or threads, as practised by some, does not, I think, admit of a doubt; besides making the specimens more easy of reference, by facilitating their *turning over*, it is more expeditiously accomplished, and the constant breaking up of the slips is obviated; besides, there are many plants which cannot be well attached by that means, such as the leaves of *Atropa Belladonna*, the very compound ones of many *Umbelliferæ*, &c., where, if the slips are applied in sufficient number to fasten the specimen fairly to the paper, both the beauty and character of it are greatly diminished; then again the fruit of grasses, *Carices*, *Compositæ*, the petals of roses, and other species bearing fugacious flowers, are almost sure to be eventually lost. Under all these circumstances, I think it will be evident that fastening them in this manner is much superior to the other method—by slips of paper: thin *glue* should always be used; never gum or paste, as these are apt to turn mouldy, and also, after a time, to give way; it should be carefully applied with a pretty large and soft brush, and immediately committed to the press and paper used for drying plants, to remain there until thoroughly dry: the paper I use is large printing paper, thick and strong, about seventeen by nine and a half inches: I have some of the half sheets cut in two, and others in four; the folio size being intended for such plants as the *Rumices*, most ferns, grasses, *Carices*, &c.; the quarto for those

of the size of *Sedum Telephium*, *Geraniums*, &c.; and the octavo for all such small species as the *Arenarias*, *Saxifrages* and *Sedums*: in this way only one specimen is put upon each piece of paper. I have then a sheet of coarse stiff cartridge paper for each *species*, about a fourth of an inch larger every way than the other sheets: within this is laid the specimen or specimens glued to the other paper, with the station, date, or any other particulars, written on the latter; then on the lower left hand corner of the sheet I write the name of the species, and include all belonging to the same genus in another rather larger sheet, on which are written the name of the genus, class, order &c. The genera may be arranged according to the system adopted by the collector, and made up in tolerably small bundles, according to Mr. King's plan, but not *bound* at the back, but secured instead by strings, or straps and buckles, at each side: this mode of arranging a herbarium I find to be the most convenient for reference and enlargement, as well as the most economical, and the collection admits of being laid much smoother and flatter than if the leaves of paper were all of one size. It is desirable sometimes to have specimens *loose* for examination; indeed this is almost the only recommendation urged in favour of having them only partially fastened to the paper: in all *doubtful* or interesting plants it is very necessary to have at least the most essential parts loose; and a piece of paper, folded somewhat like a letter-envelope, and fastened by a wafer or a little gum to any part of the inside of the *species-sheet*, should always contain the flowers and fruit of the *Umbelliferæ*, *Carices*, *Cruciferæ*, &c. &c. — *Thomas Edmonston, jun.*; *Balta Sound, Shetland, June 15, 1843.*

339. *Note on drying Plants for the Herbarium.* As I am on the subject of herbaria, allow me a few words on the *drying* of plants; however simple the operation, it is one by no means well understood. I shall mention the way which in my hands seems to take up least time and trouble, and to dry plants more perfectly than any other I have made trial of. It appears to me that one cause of our seeing so many imperfectly and clumsily dried specimens, is from botanists not using enough paper between the layers of specimens, and from not applying sufficient pressure *at first*. I never employ less than twelve sheets of thick absorbent paper for any plants, twenty-four for strong or succulent species, and a board between every layer or two of specimens; the weight at first ought generally to be not less than two cwt. This pressure very speedily expels the moisture from the plant, without giving it time to shrivel up or change colour: the specimens lie in this way one, or perhaps two, days, and are then taken out and

all the paper changed, and half the weight or less applied for two or three days: no more changing is necessary, and in a week at most from the time of gathering the plants will be found to be perfectly dry. If any one would import the thick coarse paper used by German botanists for drying plants, and which we here never see unless coming with plants from that country, it would be conferring a great boon on British botanists, for the great superiority of the German specimens is evidently greatly owing to the superior paper for drying which they possess. I made a trial of this paper among some experiments instituted on the drying of plants last summer, and I found they dried in half the time required for those preserved with the common kind of paper. In conclusion, I would beg to caution inexperienced botanists against using hot water in the preparation of Sedums, Agraphis, and other succulent plants, or indeed for any specimens whatever, for, however well they may look, they are entirely useless as *specimens*, for the hot water utterly spoils the character of the plant, it being impossible to dissect and analyse them, and, unless pasting plants on the walls of rooms comes into fashion, I am quite at a loss to conceive the use of it: by proper care and attention to having the plants *quite dry* before committing them to press, specimens may be preserved fully as beautifully; and infinitely more usefully than by the *hot-water cure*.—*Id.*

340. *Note on Cerastium latifolium.* I am sorry to find that Mr. Watson (Phytol. 586) does not agree with my views of the *Cerastium* described by me, (*Id.* 495). I am also sorry to find Mr. W. confining his remarks to the least important point characterized, viz. the form of the leaves, and the sum of the proof seems to be brought from a garden specimen: all the characters derived from the length of the peduncles, the bracteæ, sepals, capsule, pubescence, &c., are dismissed without comment; Mr. W. merely saying "that the other characters *appear* as little constant as those taken from the leaves." Now having examined such a multitude of specimens from different stations, collected at different times, I feel convinced I am correct in saying that the characters I have given are really constant: they are such as are employed, without a doubt, in distinguishing other species of *Cerastium*, and better will rarely be got among the Caryophyllæ. The main point urged by Mr. W. is, that cultivated specimens of the Scotch "*C. alpinum* and *C. latifolium* bear leaves equally short, broad and obtuse," as those I have figured belonging to my *C. latifolium*. Now every botanist knows that plants removed from their native mountains to a garden, can never be depended on for retaining their

characteristics. I have seen in the Edinburgh Botanic Garden, and elsewhere, plants of *Cerastium alpinum* raised from roots from Clova, in which the leaves were *linear-lanceolate*, and hardly to be distinguished from those of some narrow varieties of *C. triviale* or *atrovirens*; yet no one would for a moment dream of considering this a normal form. I cannot help thinking that Mr. Watson is misled, partly by the garden plants he alludes to, and partly by seeing some variations in the form of the leaves of the Scotch plants: thus he says that in "a specimen of *C. latifolium* (of British authors), gathered on Ben Lawers, there are lanceolate-ovate or *almost* orbicular leaves from the same root." I have seen considerable difference in the breadth of leaves of *C. alpinum*, but the nearest approximation to "orbicular" I have ever met with was somewhat broadly-ovate, and the character "ovate or ovato-lanceolate" includes all the varieties I have seen in wild specimens. My *C. latifolium* has come up in the old station, within a few hundred yards of my residence, by thousands, this year; and in examining numerous individuals some days ago, for the purpose of making a drawing and description of it for the 'Supplement to English Botany,' I am more than ever struck with the great difference in colour, habit, &c., as well as more important points and differences. I shall be happy to supply any of your correspondents with specimens of this interesting plant.—*Id.*

341. *Unusual habitat of Limosella aquatica.* In the few localities in which I had gathered the *Limosella* previously to the present month, the plant was growing either wholly in water, or on the sides of pools and ditches which had recently been under water. Yesterday I found about a dozen specimens of this plant, just coming into flower, on the surface of my kitchen garden, intermingled with young plants of *Veronica Buxbaumii*; the seeds of the latter having been sown by myself, on the same spot, in the month of May, at which time no plants of the *Limosella* were observed, nor had I ever before seen this species in my garden. The ground has been used as a kitchen garden for the last eight years, and was several years in cultivation as arable land before its conversion into a garden. It was originally marshy, but was drained and enclosed many years ago, and is now so little disposed to retain its former character, that my gardener usually finds it necessary to water his crops copiously in spring and early summer. In the present year, however, abundant and almost daily rains through a part of May and June, kept the ground more humid than was desired; and apparently the seeds of the *Limosella* had germinated during those weeks of wet weather. How

these seeds reached the spot on which the plants were found I am quite unable to say, but would deem it not improbable that they had been carried to the garden in water from a neighbouring pond, in which I have never seen the *Limosella*, but to which its seeds may have been borne by a flood-stream two years ago, from a more distant pond, within which the plant has been repeatedly observed. The alternative conjecture, that the seeds had remained dormant in the soil of the garden for twenty or thirty years, seems less likely to be the true explanation. But by whatever way the seeds contrived to be on the spot in question, the fact of the *Limosella* being found as a weed on cultivated ground is worthy of record, as a marked instance of change from the ordinary habitat of an "aquatic" plant.—*Hewett C. Watson ; Thames Ditton, June 30, 1843.*

342. *Note on Symphytum asperrimum.* One fine evening last month during a stroll along the banks of the river Tame, in Cheshire, I fell in with a quantity of *Symphytum asperrimum*, apparently wild, growing in a meadow. There is no garden in the vicinity, from which it could have escaped, indeed I have never seen it cultivated in the gardens about here, though I am aware it is occasionally to be met with. Perhaps some of your correspondents may know something about the plant, and on whose authority it was placed in the Supplement to Francis's Catalogue.—*J. Sidebotham ; Manchester, July 7, 1843.*

343. *New habitat for Lepidium Draba.* This plant is of such rare occurrence, and so local, as very seldom to be brought within the reach of the collecting botanist; indeed, unless recent research has multiplied localities, I know but of two spots where the plant may be certainly found in Britain. Hence I was much pleased at discovering a new colony of the *Lepidium Draba*, a few weeks since, and the announcement may perhaps gratify other botanists. What is most remarkable in the matter is, that I feel certain the plant was never there until the present season, as I have doubtless passed the spot it now occupies almost a thousand and one times within the last few years, although this season thirty or forty plants have suddenly sprung up in one particular place. I am almost afraid to indicate the exact locality, lest a file of men from the Worcestershire Natural-History Society should reduce the whole colony to mummies; but suffice it to say that it grows on the glaciis of the embankment of the new road made about seven years since, to the iron bridge over the Teme at Powick, and not near any habitation or ploughed field. It also grows mixed up with the quick of the hedge planted since the road was formed, in company with a rank growth of *Malva sylvestris*, *Sisym-*

brium officinale, &c., and therefore I think the agency of Nature *only* has located the plant there, however that may have been exercised. I am the more induced to mention this, as I did not discover this *Lepidium* in time to include it in my *Malvern Plants*,* which I should otherwise have done, since its habitat is on the *western* side of the Teme, within a little more than five miles of Great Malvern. As I have often poured forth maledictions on road-surveyors for eradicating plants, it is but fair to set down this occurrence as *per Contra, Cr.* in their favour; and I dare say the embankments of railways will in time produce some *good things*. I beg leave to say that I have in fairness left between twenty and thirty plants of the *Lepidium*, if not more, to perfect their seeds, so that if the locality should become unproductive in future, it will not be my fault.—*Edwin Lees; Church Hill Cottage, Powick, near Worcester, July 12, 1843.*

[The parallel case of *Lavatera Olbia* springing up on the embankment of a new road in Epping Forest, has been recorded by Mr. H. Doubleday, (*Phytol.* 265); there is, however, this difference, that we are not aware of any other British station for the *Lavatera* being on record, while *Lepidium Draba* has previously occurred in Glamorganshire (*Phytol.* 106), Kent and Cheshire.—*Ed.*]

344. *Enquiry respecting Equisetum arvense and E. Drummondii.* Perhaps you will allow me, through the medium of your periodical, to enquire of your readers whether *Equisetum arvense* or *E. Drummondii* be the more glaucous of the two; as I never had the pleasure of seeing *E. Drummondii* in a living state. My reason for making this enquiry is, that Sir W. J. Hooker tells us (in 'British Flora,' 1st and 5th editions) that *Drummondii* "is greener and less glaucous" [than *arvense*]. Francis, speaking of *E. Drummondii*, says, "this plant differs from *Equisetum arvense* in its more glaucous, greener colour." I hope to be excused for making this enquiry, for surely, such books as those I have quoted were written for the purpose of being understood. I think it can be no printer's error in the 'British Flora,' or it would have been corrected before it had got through five editions.—*Samuel Gibson: Hebden Bridge, June 13, 1843.*

345. *Enquiry respecting Carex distans.* While on the subject of enquiries, perhaps I might be allowed to ask, what is to be understood by "the barren stalks," in the description of *Carex distans* in 'British Flora,' 4th and 5th editions? As this is a new term among the Carices, I hope to be excused for making the enquiry. I should have taken this for an error of the press, had I not found the same

* *Plants of the Malvern Hills.* By EDWIN LEES, F.L.S., &c. Tilt & Bogue, Fleet Street: Lamb, Malvern. A notice of this book in our next.

words used by two different authors; first by Sir W. J. Hooker, in the 4th edition of his 'British Flora,' and then by Leighton in his 'Flora of Shropshire,' and again by Hooker, in the 5th edition of his Flora.—*Id.*

346. *Notes on Epipactis latifolia, &c.* I am sorry that I omitted, in the last Phytologist, to call the attention of botanists to *Epipactis latifolia*, and its closely allied species, or varieties, or whatever they may be; but it is not now too late to institute an enquiry, and I earnestly hope that all botanists who have an opportunity of studying the plants *in a living state*, will avail themselves of that opportunity, and favour the public with the result of their investigations. Those who have seen an extensive series of specimens of the plant known as *Epipactis latifolia*, are well aware of the great variety of form and habit which it assumes, even without including the forms of the less variable but still inconstant *E. purpurata*: but if these are combined with the plant usually known as *E. latifolia* and its acknowledged varieties, the transition from the one extreme to the other becomes more gradual, and the difficulty of distinguishing between the intermediate forms is consequently greatly increased. Ray seems to have doubted if there might not be more than one species confounded under his *Helleborine latifolia montana*, since he remarks that he has observed this plant to bear green flowers, but that Dr. Plot and the Oxford botanists find one, the flowers of which are of a still deeper purple than those of *Helleborine flore atro-rubente* (Smith's *Epipactis latifolia* *β.*), adding, "whence it is either a striking variety, differing in the colour of the flower, or the two plants are distinct species." Smith also says that "the reputed varieties of *E. latifolia* perhaps require more scientific examination than they have hitherto received." In Leighton's 'Flora of Shropshire,' under *Epipactis latifolia*, Mr. Babington has given the characters of two plants:—1. *E. latifolia*, *All.* and *Eng. Bot.* 269, the normal *E. latifolia*, with very broad leaves, and green flowers with a purple lip; and, 2. *E. viridiflora*, *Reich.*, with only the lowest leaves broad, and the flowers "green, tinged with purple." The latter plant is referred by Fries, as a variety, to his *E. media*; with the remark that if attention be paid only to the colour of the flowers, it must necessarily be confounded with *E. latifolia*, from which it may always be known by being more slender in all its parts; the leaves are also gradually narrowed to the apex, not abruptly acuminate, as in *E. latifolia*. Mr. Babington has studied the plants referrible to *E. latifolia*, with great care, but without being able to satisfy himself as to their identity or distinctness. In his 'Manual,' under *E. latifolia*, *All.*, he observes that

"there are four very different plants included under this species, one or more of which is probably distinct;" and gives the following characters:—

"a. *E. latifolia*; leaves broadly ovate longer than the internodes, upper l. ovate-oblong, lower bracts longer than the flowers, *terminal division of the lip roundish-cordate obtuse with a small recurved point* shorter than the broadly ovate sepals and petals 'its keel not crenate above.'—*E. B.* 269.—Leaves ovate, very broad, the very uppermost sometimes lanceolate-attenuated; lowermost leafless sheaths close. Lower bracts foliaceous lanceolate attenuated. Flowers green with the lip purple, sometimes all purple. Peduncle shorter than the downy germen. Lobe of the lip broader than long, crenate.

"b. *E. media*, (Fries); l. ovate-oblong the upper ones lanceolate acute, lower bracts longer than the fl. and fr., *terminal division of the lip triangular-cordate acute as long as the lanceolate sep. and pet.* its keel 'crenate above.'—*R. Icon. f.* 1141, 1142.—Narrower and more elongate in all its parts than *E. latifolia*, only the very lowest l. ovate, intermediate lanceolate, upper l. lanceolate attenuated and merging gradually into the linear-lanceolate bracts; sheaths funnel-shaped. Fl. "green tinged with purple." Peduncle shorter than the downy germen. Lobe of the lip longer than broad crenate.

"c. *E. purpurata*, (Sm.); l. ovate-lanceolate the upper ones narrower, lower bracts longer than the fl. and fr., *terminal division of the lip triangular-cordate acute shorter than the ovate-lanceolate sep. and pet.* its keel plicate-crenate above.—*E. B. S.* 2775.—L. becoming gradually narrower as they ascend the st. and merging insensibly into the linear-lanceolate bracts. Fl. "yellow-green tinged with pink." St. and l. much tinged with purple. Peduncle shorter than the downy germen. Lobe of the lip longer than broad, entire, exactly like that of *E. media*, but with a more attenuated point.

"d. *E. ovalis*; l. ovate-oblong acute the upper ones lanceolate, 1 or 2 lowest bracts longer than than the fl. but shorter than the fr., *terminal division of the lip transversely oval acute* as long as the ovate acute sep. and pet. its keel plicate-crenate above.—*Hel-leborine &c. No. 2. Ray*, 383?—L. small; sheaths funnel-shaped (as far as I can judge from dry specimens). Bracts all much smaller than even the uppermost leaf. Fl. blackish-red, peduncle shorter than the downy germen. Lobe of the lower lip exactly transversely oval, crenate, with a small acute point and an elevated folded and crenate triangular keel above. St. 6—18 inches high."—*Bab. Man. Brit. Bot.* 295.

Of the above four forms, a. appears to be the most common; of this I possess specimens from Reigate Hill, Surrey; East Marden, Sussex; and from near Geneva: and believe the same form to occur very frequently in some parts of Epping Forest and on the weald clay of Sussex. I have a single specimen of what Mr. Babington considers to be the second form, b. from near Chipstead, Surrey. The third, c. is not unfrequent in the woods on the chalk hills of Surrey; I possess it from near Reigate, and have seen it in the copses below Crawley, Sussex; these are identical with Mr. Forbes's Woburn plants, as figured in *Eng. Bot. Stüpl.*, although I have some doubt of their being the same as Sir J. E. Smith's specimen, described as his *E. purpurata*. Of d. I know nothing, except from a specimen from Giggles-

wick, near Settle, kindly presented by Mr. Babington, and another from Gordale, near Settle, labelled "*Epipactis latifolia*, var. β ." It may here be remarked that the plants must be studied in a *recent state*. Mr. Babington observes, "The points that require attention in these plants are *the shape of the terminal lobe of the lip*, with the character of its upper surface,—*shape of the petals and sepals*, and the character and form of the sheaths on the stem;" these points cannot be properly investigated in dried specimens.—*Geo. Luxford*; 65, *Ratcliff Highway*, July 22, 1843.

347. *Note on the Gravesend locality of Pæonia corallina.* We are so accustomed to consider that Master Gerarde was actuated by entire good faith in making known his discoveries, that it is perhaps hardly fair to publish anything in disparagement of his fair fame; wherefore in mentioning the following naughty trick, with the doing of which he is charged by his emaculator, Johnson, it is more for the purpose of soliciting information as to the present state of the Gravesend locality of his "*Male Peionie*," than for any other purpose: at all events the passages are amusing. Gerarde says — "The Male Peionie groweth wild vpon a conny berry in Betsome, being in the parish of Southfleet in Kent, two miles from Grauesend, and in the ground sometimes belonging to a farmer there called *Iohn Bradley*." To this Johnson adds, — "† I haue beene told that our author himselfe planted that Peionie there, and afterwards seemed to finde it there by accident; and I doe beleeeue it was so, because none before or since haue euer seene or hard of it growing wilde in any part of this kingdome. †" — *Ger. Em.* 1983. The Steep Holmes station was not known then.—*Id.*

348. *Mr. Murcott's Plan for drying Plants.* The following is the mode of drying plants by means of a deliquescent salt, before alluded to, (*Phytol.* 674).

"The plants to be dried are placed between sheets of paper containing chloride of calcium, contact with the salt being prevented by an intervening cushion on one side, and a layer of fine calico on the other. Two thin boards support the apparatus, and are held together by a couple of buckled tapes; the whole is enveloped in oil cloth to exclude atmospheric moisture. The packet need not be opened till the plants are dry enough to be removed, or fresh plants require to be introduced. The time and trouble of frequently removing drying plants into fresh papers, as in the ordinary method, are both saved; for though the packet be full of plants, it need not be opened even for several months. Plants in general dry much faster than in blotting paper, and their colours are much more frequently preserved: the use of the pad prevents injury to the soft parts of plants, and hinders their corollas from shrivelling up in drying, without applying so much pressure as would unfit any part for subsequent examination.

"Brown paper, so thick as to prevent the transmission of light, with a smooth surface, and not much sized, is better fitted to hold the salt than blotting-paper, which

it greatly surpasses in durability and tenacity in a damp state. The paper is impregnated with the salt by dipping it (a sheet at a time) in a solution formed by dissolving $13\frac{1}{2}$ oz. of the crystallized chloride of calcium in one (imperial) pint of water. Where the chloride is expensive, or difficult to be procured, it may be prepared by saturating hydrochloric acid with fragments of marble, or even with common chalk: the acid may be of commercial strength or slightly diluted with water; but the vessel containing it should be capable of holding several times the quantity, on account of ebullition. After saturation the liquid should be filtered, and diluted with water till its specific gravity falls to 1.188; this may be ascertained most readily by a glass bead of that number. The sheets as they are dipped (a large tea-tray is very convenient to hold the liquid) should be carefully laid one upon another, and at length so much liquid pressed out that they will not drip when held before a fire to dry. I dry them before a fire, but a friend suggests that much time and trouble would be saved by drying them in a baker's oven. A solution of this strength will communicate as much of the salt as the paper can retain without showing an exudation on its surface when applied to use and its complement of moisture absorbed, while the excessive brittleness occasioned, if the liquid be much more concentrated, soon splits the back of every sheet; and the drops of liquid that appear as the paper grows very damp might deter a beginner from following the method.

"In applying the paper to use, I place about three sheets between every lot of plants: the plants do not touch the paper, but lie on a cushion of cotton wool, and are covered with a piece of 'glazed lining' calico, or similar material; or they are placed between two pieces of flannel; of course the same surface of the cotton or flannel should always be applied to the paper, to prevent communication of the salt to the plants. I have prepared some sheets of paper on one side only, but have not yet given them a trial. The pads do not much affect the quick drying, but they preserve soft parts from injury, and render a very slight pressure sufficient. When I wish to preserve the corolla of a plant in the best possible manner, I place under and above it a little finely opened cotton wool. When very watery plants are to be dried, such as *Hottonia palustris*, I would place an extra cushion of cotton wool over them. Plants seem to dry best at a temperature of about 100° Fah. When the papers have taken up as much moisture as they can absorb, they may be re-dried before a fire, if the method suggested by a friend (drying at a baker's oven) should not be accessible. *Orchidaceæ* and *Scrophulariaceæ* are bad driers, even with the aid of chloride of calcium; but I find that *Listera ovata*, and probably some others, may have their colour perfectly preserved if immersed for a few seconds in a nearly boiling but very weak solution of carbonate of soda, then wiped and placed between the papers. This remark may perhaps induce some one with more leisure than myself to experiment on various ways of drying plants of these natural orders.

"The disadvantages of the method are, in my opinion, inconsiderable when compared with the saving of time and trouble, and the much better preservation of the specimens. Brown paper is not expensive. Crystals of chloride of calcium may be bought of the Liverpool Apothecaries' Company, and perhaps elsewhere, at 5d. per lb., or if prepared at home, the expense will be about the same. The cotton-wool cushions cost 1d. or $1\frac{1}{2}$ d. each; flannel is more durable, but more expensive. The cushions render the apparatus bulky, but this is only an inconvenience in travelling, and then the far greater inconvenience of drying papers at inns in the summer months is experienced about once in three weeks instead of once a day, or every other day. Such

at least is the result of my experience; I have employed the salt in the manner described for two years and part of a third, for I commenced with it in 1840. The great dryness and consequent brittleness of the plants unfit them for the immediate examination of concealed parts, but exposure to a moist air for a short time would diminish their fragility in a sufficient degree." — *Ann. and Mag. Nat. Hist.* xi. 33.

The author recommends the use of the same salt in the cabinet containing the herbarium, in order that the collection may be preserved in a perfectly dry state.—*Ed.*

349. *Mr. E. Quekett's Observations on the Ergot of Grasses.* We gave the title of this paper in our report of the Proceedings of the Linnean Society, (Phytol. 559); the following is an extract from the recently published number of the Society's 'Proceedings.'

"In March, 1840, twelve healthy grains of rye, of wheat and of barley, were placed in a shallow glass vessel containing a sufficient quantity of distilled water to moisten them, and covered with a glass shade. When germination commenced, an ergot of wheat of the preceding year was immersed in the water, the sporidia on its surface were detached, and the ergot itself was then removed. The same experiment was performed with sporidia obtained from an ergot of *Elymus sabulosus*. Several days afterwards, when the leaves had attained a length of three or four inches, the young plants were conveyed into the country and planted side by side in a garden. At the period of harvest there remained alive only four plants of the rye (one of which had been infected from the ergot of *Elymus*, and the remaining three from that of wheat), three of the barley, and four of the wheat. Of the rye scarcely a single ear produced healthy grains, the paleæ being generally quite empty; but nine of the ears contained ergots, some furnishing only a single specimen, and others as many as six. The ears of the barley were filled with healthy grains, and only one apparently diseased grain was detected; while in the wheat the ears were full and without disease.

"As in these experiments no grains from the same sample were sown which had not been subjected to the influence of the sporidia of the fungus, Mr. Quekett made in the following autumn another experiment with the view of supplying this deficiency. Twelve grains of rye, of wheat and of barley, were again made to germinate under similar circumstances to the last, and the sporidia obtained from the surface of one of the ergots of rye produced in the first experiment were diffused in the water in which they grew. These were planted in October on the same estate, but not within half a mile of the former spot; and twelve healthy grains of each kind, which had been carefully kept apart from the others, were planted in the same locality. Very few of the plants arrived at maturity, and in August last there remained of the infected plants only two of rye, two of wheat, and one of barley; and of the uninfected plants one of each kind. On each of the plants of rye which had been subjected to the influence of the sporidia an ergot was discovered, and the ears, as before, were almost entirely devoid of healthy grains; while the plants of wheat and barley subjected to the same influence produced perfect ears and healthy grains. The three plants of rye, wheat and barley, planted at the same time, without exposure to the sporidia of the fungus, presented no unhealthy appearance.

"Mr. Quekett argues that all the grains of rye subjected during germination to the influence of the sporidia of the fungus, in both sets of experiments, having pro-

duced plants infected with ergot, while the plants derived from grains not so subjected escaped disease, a convincing proof is afforded that their infection could not have been the effect of chance, but must have resulted from the artificial introduction of the sporidia; and that the infection of the rye only, while the wheat and barley escaped, is to be attributed to the greater susceptibility of the rye to infection, as proved by the much greater frequency of the production of ergots in that species of grain."—*Ed.*

ART. CLX.—*Proceedings of Societies.*

LINNEAN SOCIETY OF LONDON.

May 2, 1843.—The Lord Bishop of Norwich, President, in the chair.

Mr. James Backhouse presented specimens of fruits and seeds from New South Wales, Van Dieman's Land and Tahiti. Specimens of two rare species of *Parmelia* from the New Forest, Hants, were presented by Capt. T. Jones, M.P., F.L.S.

M. Achille Richard and M. Joachim Frederic Schouw, were elected foreign members of the Society.

John Salt, Esq., M.D., was elected a fellow, and Mr. Thomas Sansom an Associate of the Society.

The President then announced that in consequence of the lamented decease of His Royal Highness the Duke of Sussex, the meeting would adjourn.

Anniversary, May 24.—The Lord Bishop of Norwich, President, in the chair.

The Auditors' Report of the Society's income and expenditure during the past year was read, showing a balance in the hands of the Treasurer of £189. 7s. 4d.

The following members were reported to have died during the past year:—The Rev. Jas. Dalton, M.A., John Latham, Esq., M.D., James Lynn, Esq., M.D., J. Gage Rokewood, Esq., and the Rev. Thos. Newton, Fellows: Mr. Andrew Mathews and Mr. Daniel Cooper, Associates. Since the last anniversary there had been elected 18 Fellows, 2 Foreign Members and 6 Associates.

The President having proposed that the King of Saxony should be elected as an Honorary Member of the Society, the question was put to the vote, and His Majesty unanimously elected.

Edward Forster, Esq. having taken the chair, the members present proceeded to ballot for the Council and Officers for the ensuing year. Mr. Suttor, Dr. Lankester and Dr. McIntyre were appointed scrutineers, when the following gentlemen were declared to be duly elected Members of the Council:—Arthur Aikin, Esq., the Rev. F. W. Hope, W. H. Lloyd, Esq., Richard Owen, Esq., and Wm. Yarrell, Esq., in place of Thos. Bell, Esq., Lord Beverley, R. I. Murchison, Esq., John Parkinson, Esq. and J. O. Westwood, Esq., who retire from the Council.

The ballot for officers having closed, The Lord Bishop of Norwich, Edward Forster, Esq., J. J. Bennett, Esq., and Richard Taylor, Esq., were severally declared to be re-elected President, Treasurer, Secretary and Under-secretary of the Society.

June 6.—Edward Forster, Esq., in the chair.

Thos. Turner, Esq. and James Tulloch, Esq. were elected Fellows of the Society.

Read, a 'Description of *Peltophyllum*, a new Genus of Plants allied to *Triuris*, *Miers*; with remarks on their affinities:' by George Gardener, Esq., F.L.S.

June 20.—Edward Forster, Esq., Vice-President, in the chair.

The Secretary stated that he had received instructions from the President to nominate Robert Brown, Esq., Edward Forster, Esq., Sir Wm. Jackson Hooker, and Thos. Horsfield, Esq., M.D., to be Vice-Presidents for the ensuing year.

Read, 'Notes on the Forest Trees of Australia,' by George Suttor, Esq., F.L.S.

The Society then adjourned until Tuesday, November 7.

BOTANICAL SOCIETY OF EDINBURGH.

This Society held its last meeting for the season, on Thursday, July 13, at the Botanic Garden: the President, Dr. Neill, in the chair.

After a delightful walk through the gardens, during which Prof. Graham pointed out the objects most worthy of notice, the meeting assembled in the class-room for business. Donations to the library were presented from Edwin Lees, Esq., Worcester, and Professor Forbes, of London: and several valuable parcels of British and foreign plants were announced.

The papers read, which were mostly of a technical character, were:—

1. On the genera *Gomphonema* and *Meridion*. By Mr. John Ralfs, Penzance.
2. On four new species of British *Jungermannia*. By Thomas Taylor, M.D., Dunkerron.
3. On a species of Fungus found imbedded in peat, near Stirling. Communicated by Mr. Peter Mackenzie, West Plean.

The attention of botanists has recently been directed to the importance of studying the vegetable remains imbedded in peat-mosses, as calculated to throw light on the early vegetation of the country, and the successive changes it has undergone. For this object, communications like that from Mr. Mackenzie are much to be desired.

A letter was also read from Dr. Joseph Dickson, St. Helier's, Jersey, mentioning some interesting additions to the Flora of that island, which he had lately discovered; and remarking, that he felt convinced it contains many other species still unknown to botanists.

BOTANICAL SOCIETY OF LONDON.

July 7, 1843.—J. E. Gray, Esq., F.R.S., &c., President, in the chair. Donations to the Library were announced from the American Philosophical Society, the Academy of Natural Sciences, Philadelphia, the Dublin Natural-History Society, the Shropshire and North Wales Natural-History Society, Dr. Dickie, Dr. Gavin Watson, Professor Forbes, Professor Meneghini, M. Schrenck and Mr. Chatterley.

Dr. Gavin Watson and Mr. Robert Kilvington of Philadelphia, presented a very large collection of North-American plants. The President presented some plants from Singapore, and British plants had been received from Dr. Ayres and Miss Beever.

Mr. T. Twining, jun., exhibited a large collection of living cultivated plants from Twickenham.

Read, 'Observations on *Dicranum Dillenii*, Taylor, MS.,' by Dr. Thomas Taylor.

As Dillenius is the first author who directed the attention of botanists, seventy-five years ago, by a separate figure, to the present moss, his name has been ascribed to it; and yet it is evident that Dillenius, as well as all subsequent muscologists, have confounded it with *Dicranum scoparium*, Linn. Nor is this without excuse, when we consider the strong resemblance in the habit of both, their being nearly equal in size, their very general occurrence in Europe, as well as the northern parts of America, and particularly their frequently growing together in the same woods, or on the same banks, in more open and mountainous situations. Besides, the present plant varies considerably in appearance, so that the one state, well figured in 'English Botany,' t. 354, as *Dicranum scoparium*, would scarcely be supposed to belong to the same species as another state, equally well represented by Schwaegrichen in his Supplement, t. 42, under the same name. It is the wide limits within which its aspect changes that probably weighed with the editors of 'Muscologia Britannica,' to give both species, well-represented, as varieties only of *Dicranum scoparium*.

Submitted however to a rigid scrutiny, Dr. T. apprehended that the following distinctive marks would be found to be constant, and if so, they would appear to be sufficiently numerous and sufficiently grave to establish the present species.

1. *Dicranum Dillenii*, though frequently differing in size, is usually the smaller moss.
2. Its leaves are not constantly, and but slightly, turned to one side, while in *Dicranum scoparium* they are more loosely set, and uniformly falcato-second.
3. In the present species the pedicels are solitary, in the other aggregated within the same perichætium.
4. In the former the pedicels are opaque, even immediately below the capsule, at the period of full maturity; they are also reddish below and brownish above: while in the latter, even when full grown, they are somewhat pellucid, and of a pale straw colour.
5. In the former, the capsule is erect below and slightly curved above, is nearly equal, has no projecting struma, yet with an apophysis, pale brown when ripe: in the latter, the capsule is curved, even long before the fall of the calyptra, is very unequal, has a projecting struma, and is green when just ripe.
6. In the former, the operculum is gradually acuminate, and falls after the calyptra; while in the latter, the operculum, with a broad base, is suddenly acuminate, and usually falls in and with the calyptra.
7. In *Dicranum Dillenii* the teeth of the peristome are narrower and more opaque.
8. The stem is often interruptedly leafy.
9. The leaves are shorter, and have their points less curved.
10. The parts of fructification are larger in proportion to the size of the plant.

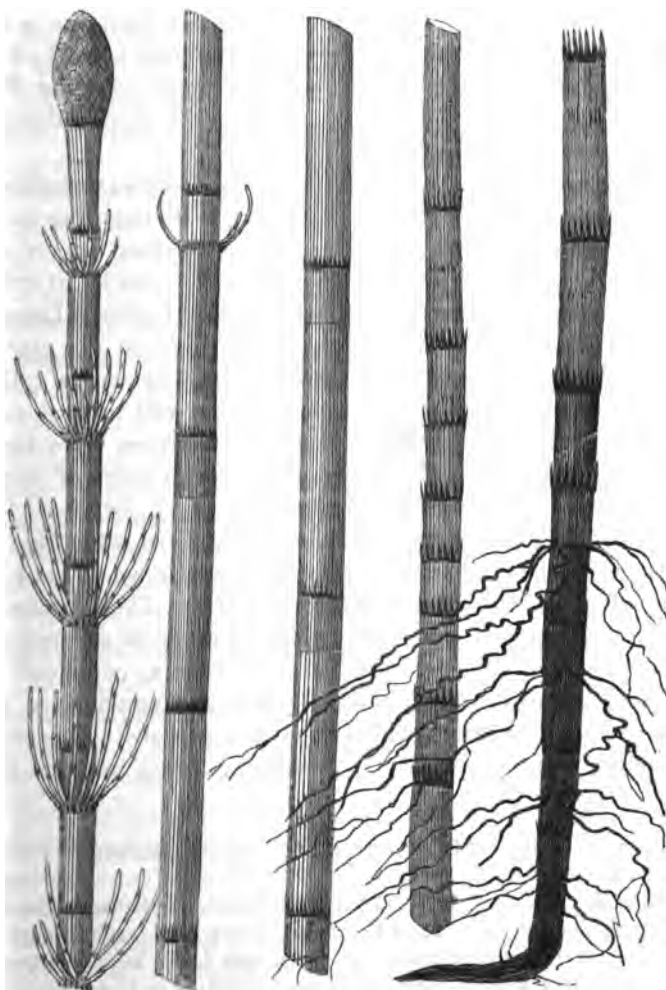
In the Museum of the Society occurs a *Dicranum* from Newfoundland, from the late Mr. Lambert's collection, which, being barren, and consequently not admitting of a comparison of the parts of fructification, Dr. T. would not venture to separate from *Dicranum Dillenii*; and yet its densely aggregated and shorter stems, its shining lustre, and its less patent leaves, would demand the greatest attention, and would indicate it as at least a very remarkable variety; but when it is considered that its leaves are shorter, wider in the lower half, with their points more canaliculate, and the nerve serrated at the back, it must be confessed that its claims for separation are very strong.

— G. E. D.

THE PHYTOLOGIST.

ART. CLXI.—*A History of the British Equiseta.* By E. NEWMAN.

(Continued from p. 630).



WATER EUISETUM.

EQUISETUM FLUVIATILE, *Linneus*.

Equisetum limosum, Smith, Hooker, Babington.

THIS species is by far too generally distributed to allow of my giving a list of habitats: it occurs very commonly in ponds and ditches, and occasionally in running streams, the roots and a portion of the stem being immersed in water.

Concerning the nomenclature of this plant Sir J. E. Smith has led us into an error, which, in a late number of 'The Phytologist,' I took some trouble to point out; and although I believe no one who has investigated the subject entertains the slightest doubt as to the fact that the species now figured on the preceding page is the *E. fluviatile* of Linneus, yet several eminent botanists prefer adopting Sir J. E. Smith's nomenclature to that of Linneus, on the ground that the former is now established by usage.

The medicinal properties of this plant have been so variously stated that they appear to contradict each other. With regard to its economical uses Linneus gives us, in his 'Flora Suecica,' a very definite statement that in Sweden it is cut up as food for cattle, in order that the cows may give more milk; * and in his 'Lachesis Lapponica' he observes that "the rein-deer feed with avidity on the great water horse-tail (*Equisetum fluviatile*), which the Laplanders call *Aske*, though it was in a dry state, and though they will not eat common hay. How unaccountably negligent" he continues, "are the Laplanders not to collect in the course of summer a stock of this plant, and of the rein-deer moss (*Lichen rangiferinus*), for winter fodder! They would then have some provision for the herd when the country is covered with an impenetrable crust of frozen snow, and not hazard the loss of all they are worth in the world."† There seems to be very contradictory evidence even within the range of our more immediate observation, as to its being eaten by horses, cows and sheep. I have seen it growing luxuriantly in ponds in Herefordshire, in situations accessible to cattle, but I never could perceive that a stem had been eaten; but more recently, in the ditches which intersect the rich

* Dissecatur in pabulum Boum, ut vaccæ lac copiosius præbeant. — Linn. 'Flora Suecica,' p. 368, n. 390.

† 'Lachesis Lapponica,' ii. 108, of Sir J. E. Smith's translation. The following parallel passage occurs in the 'Flora Lapponica,' p. 322. Rangiferi, Lapponum pecora, fœnum per hyemem non adsumunt facile, hinc Lappo noctes diesque eos per sylvas ducere tenetur. Obtuli circa autumnum redeuntibus ex longo itinere Rangiferis fasciculum fœni, et observavi eos hanc plantam seligere et adsumere, reliqua fere intacta relinquere. Annon itaque hocce Equisetum majorem œconomix lapponicæ usum adferre posset, incolis indicandum relinquo.

pasture land in the Isle of Dogs, I observed that nearly every stem within reach from the bank had been cropped at a nearly uniform height: horses, horned cattle and sheep, are constantly feeding in these meadows.

The roots of the water *Equisetum* are numerous, black, fibrous and sinuous: they spring from the bases of the submerged sheaths in a manner precisely similar to that of the branches, and those which originate near the surface of the water not unfrequently ascend for a time in the same way. The rhizoma is creeping, and extends horizontally in every direction, forming a matted mass in the mud of ponds and ditches where the plant occurs: it is of a brown colour, with jet black sheaths, which are rather more approximate than in ascending stems, but in other respects scarcely different. In winter, when the exposed portion of the stem of the preceding year is dead, the remaining portion becomes prostrate on the mud, still however retaining some of those lower branches which may be seen in the summer in a state of incipient development: these, together with others in a still younger state, form the ascending stems of the ensuing year.

The engraving at page 689 represents a moderately sized stem of the water *Equisetum*, of its natural size and proportions: a much larger might have been selected, but its representation would have been more difficult. The stem is perfectly erect, and about twenty-five inches in height, of which seventeen inches were above water and the remainder submerged. The submerged portion is smooth, the apical portion slightly striated (the striæ are much more distinct in immature and barren stems); its average diameter is a quarter of an inch: it is divided by transverse septa into thirty compartments, thirteen of which were above, and the remainder below the surface of the water: the internodes above water vary from three quarters of an inch to an inch and three quarters in length; those submerged are very obviously shorter. The sheaths are about a quarter of an inch in length; they are green, concolorous with the stem, and of nearly equal diameter, so that they clasp it very tightly: the teeth are sixteen to twenty in number, sharp-pointed, always distinctly separated, black or dark brown, and not unfrequently furnished with a very slender white membranous edge. There are six whorls of ascending branches: these rise from the base of the sheaths from the second to the seventh internode inclusive. The branches in each whorl vary from five to seventeen in number: they are divided into joints, varying from five to ten in number, and have from five to eight striæ with corresponding ridges, which terminate in sheaths having the same number of

brown-tipped teeth : the internodes of these branches are extremely variable in length, the first and last being the shortest : the branches also vary greatly in length.

The catkin is short, ovate, gibbous and terminal ; and the stalk on which it stands is short, scarcely exceeding in length the sheath which encloses it. I can discover no apiculus, the extreme summit being composed of scales similar to the rest : these are generally more than a hundred in number ; exteriorly they are quite black, but as they separate about Midsummer, by the ripening of the catkin, a common receptacle of ivory whiteness is disclosed.

This species is extremely subject to variation, so much so that the preceding description will only suffice to give a general idea of a fertile stem. Some are entirely unbranched, others sparingly branched, and others again more numerously branched : the site of the branches also varies, commencing variously at the second, third, fourth, fifth, sixth or seventh sheath, and forming two, three, four, five, six, seven or eight whorls. When quite unbranched, whether fertile or barren, I have no doubt that it is the '*Equisetum nudum lævius nostras*' of Ray,* the habitat, figure, &c., closely corresponding ; this form is also the *E. limosum* of Linneus, who, in his '*Systema Vegetabilium*,' quotes Ray's description and figure ; but it should also be observed that subsequently, in his '*Flora Lapponica*,' he omits all notice whatever of this unbranched form, evidently not considering it worthy of a place even as a variety. The fertile stem occasionally becomes profliferous, as in the preceding species, but much more rarely. Mr. Luxford possesses a specimen of this kind, found in a mill-pool, by the Bristol-road, Birmingham ; and in Sir J. E. Smith's herbarium is a Swiss specimen from Mr. Davall, as recorded in the '*English Flora*,'† where the author remarks that he has seen no such variety in England.

The barren stem is much longer than the fertile, and varies in an infinity of ways : among a few which I have lately gathered in the ditches of the Isle of Dogs, where this plant abounds, but can scarcely be said to flourish, I select the following as instances of variation.

A—is forty-three inches in length, and has thirty-seven joints, without a single branch.

B—is forty-five inches in length, and has forty joints : from the first to the nineteenth inclusive these are branchless, the twentieth has one branch, the twenty-first two branches, the twenty-second two, and the twenty-third to the fortieth inclusive one branch each.

* Synopsis, 131, tab. 5, fig. 2, a, b.

† English Flora, iv. 326.

C—is forty-five inches in length, and has forty joints : these, from the first to the fifteenth inclusive, are branchless, the sixteenth has one branch, the seventeenth has two branches, the eighteenth has thirteen, the nineteenth eleven, the twentieth nine, the twenty-first nine, the twenty-second ten, the twenty-third ten, the twenty-fourth seven, the twenty-fifth eight, the twenty-sixth two, the twenty-seventh two, the twenty-eighth two, the twenty-ninth one, the thirtieth three, the thirty-first none, the thirty-second two, the thirty-third none, the thirty-fourth one, the thirty-fifth and thirty-sixth none, the thirty-seventh two, the thirty-eighth two, and the thirty-ninth and fortieth none.

D—is forty inches in length, and has thirty joints : from the first to the sixteenth inclusive, and also the eighteenth, twenty-fourth, twenty-seventh, twenty-ninth, thirty-first, thirty-third, thirty-fifth, thirty-sixth and thirty-eighth are branchless ; the seventeenth, nineteenth, twenty-first, twenty-third, twenty-fifth, twenty-sixth, twenty-eighth, thirtieth, thirty-second, thirty-fourth and thirty-seventh, have one branch each, the twentieth has two branches, and the twenty-second three branches.

It should also be observed that stems, which at first are perfectly unbranched, often throw out a few scattered branches as the season advances, so that it is almost impossible to lay down any formula of branching that shall be at all constant.

In barren stems the apical joints appear to be invariably branchless and very much attenuated, while the median and lower joints are generally more or less branched : the inferior branches, especially when their insertion is submerged, are much stouter than the superior ones, and are often furnished with whorls of branches, like the main stems.

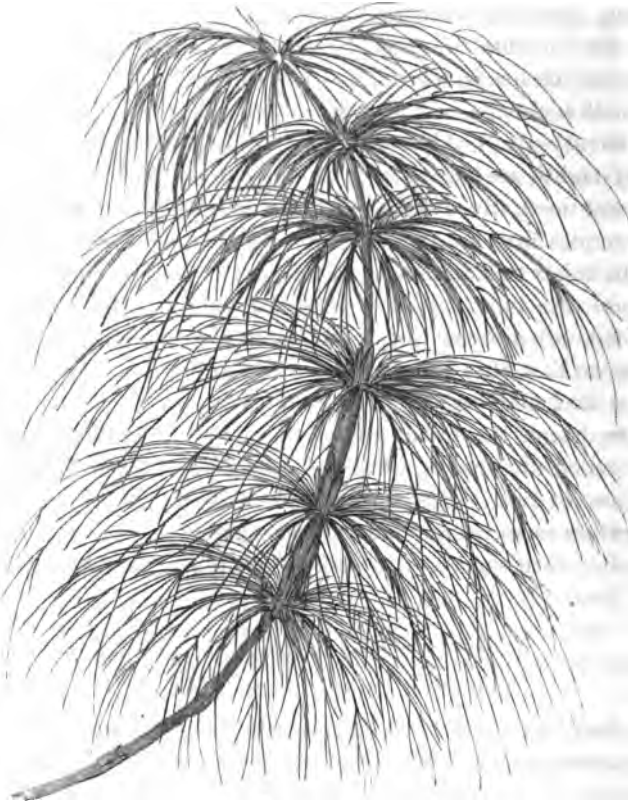
THE WOOD EQUISETUM.

EQUISETUM SYLVATICUM, *Linneus*.

THIS plant, although local, is very widely distributed, occurring in moist shady woods throughout the kingdom. In the vicinity of London it grows in several woods in the Hampstead and Highgate district : at the latter place it was observed as long since as the time of Lobel, who records the habitat in his ‘*Illustrationes Stirpium*,’* published in 1655, disguising the English appellation of ‘Highgate,’ under the scientific term of ‘*Alta Portæ*.’ The other English habitats with which I have been furnished through the kindness of correspondents are so numerous that a mere list of them would exceed the space

* *Illus. Stirp.* 149.

I can afford for localities. In Scotland I observed it growing with peculiar luxuriance in the vicinity of Loch Fyne, in a little fir-wood on a hill side. The fructification had entirely disappeared, and each stem had attained its full development, and every pendulous branch its full length and elegance. Altogether I could have fancied it a magic scene, created by the fairies for their especial use and pleasure,



Equisetum sylvaticum, (barren stem).

and sacred to the solemnization of their moon-lit revels. It was a forest in miniature, and a forest of surpassing beauty. It is impossible to give any adequate idea of such a scene, either by language or illustration. In Wales it occurs at Hafod and near the Devil's Bridge, in deep shaded ravines, occasionally straggling into open and exposed places, but then partially divested of its characteristic elegance.

The figures of this plant are for the most part characteristic, although some of the older ones might have been more satisfactory. It is so distinct in its appearance and characters that one can hardly fail of recognizing it if drawn with even a moderate degree of accuracy. For the same reason all authors appear to agree in its name, and we thus escape the trouble of investigating a confused synonymy.

The roots of the Wood Equisetum are fewer in number and somewhat smaller than those of the species I have described: they are brown, tortuous, occasionally branched, and generally clothed with fibrillæ: the rhizoma is horizontally extended, branched and striated; in many places it is clothed with fibrillæ like those of the roots: it is throughout of a dark brown colour.

The stems are of two kinds, fertile and barren: both, when mature, are furnished with compound branches. The fertile stems rise from the ground perfectly naked, but most of them soon exhibit incipient branches just at the base of the upper sheaths; these quickly elongate into compound branches, forming several whorls, as represented on the next page. The number of whorls varies from two to eight; I have rarely met with the latter number, and never with more. Long after the catkin has decayed, these whorls of branches continue vigorous, and combine in giving a blunt or flat-topped appearance to the entire frond. They are of a dull, sickly, green colour, succulent and striated: the striæ are about twelve or fourteen in number, and the ridges between them are armed with minute siliceous points, but these are insufficient to communicate any roughness or harshness to the plant. The sheaths are very long and loose, terminating superiorly in three or four large conical lobes, containing on an average three striæ in each; the inferior portion of these sheaths is concolorous with the stem, the superior or apical portion is of a bright russet brown colour.

The catkin is elongate, somewhat pointed, and of a pale brown colour; it stands on a slender stalk, of rather more than its own length. The scales of the catkin are eighty and upwards in number. The catkin is ripe in April.

The barren stems make their appearance almost simultaneously with the fertile ones, but are more slender, and the sheaths are much smaller, although similarly formed and coloured. The whorls of branches are from ten to twenty in number, and the branches composing each whorl gradually decrease in number and length towards the apex, which is extremely slender, so much so, that unable to bear its own weight, it droops on one side, and is not readily to be distinguished from the

surrounding branches. The striæ are more distinct than in the fertile stem ; three or four of the ridges run into each of the lobes of the sheaths, and unite in its apex.

The branches are very slender, long, and drooping ; they are commonly divided into twelve or fourteen joints, of which the first and



Equisetum sylvaticum (fertile stem).

last are the shortest, and the second, third and fourth the longest, and emit from near their extremities other slender, long, and drooping branches. This second series of branches is of no uncommon occurrence in *Equisetum Telmateja* and *E. arvense*, but in these species it

may be regarded as casual, while in the present it is a constant character of the plant. The ultimate branches are generally triangular, each joint terminating in three long pointed teeth.



THE SHADY EQUISETUM.

EQUISETUM UMBROSUM, Willdenow.

Equisetum Drummondii, Hooker.

“FOR this addition to the [British] species of *Equisetum* we are indebted to Mr. Thomas Drummond, who found it on the banks of the Isla and Esk, in Forfarshire, extending up the valleys almost to the

sources of those rivers.”* Dr. Greville, who has obligingly supplied me with specimens, has since discovered it in woods near Forfar ; and Dr. Balfour, to whom I am also indebted for specimens, has supplied me with the following list of Scotch localities :—“ Woodcockdale wood, near Linlithgow ; in woods at Castle Campbell, near Dollar ; in a wood at Carloch Glen ; head of Glen Isla ; in Campsie Glen and Finglen, near Glasgow ; in woods near Corra Lin, Lanarkshire ; in woods near Dunfermline ; and in woods at Auchindenny, near Edinburgh.”

This species has also been found in Ireland. Mr. Moore, of the Glasnevin Botanic Garden, says, “ I suppose this species is not unfrequent in the county Antrim, on the sides of mountain glens where the geological formation is similar to that at Wolf Hill, *viz.* lias mixed with hardened chalk, but of this I am not exactly sure : the only place where I have collected specimens was a deep mountain glen near Cushendall, called Glendoon : I took it for a variety of *E. sylvaticum*, not being then acquainted with the species ; but on comparing the specimens with those picked at Wolf Hill,” the residence of William Thompson, Esq., and the original Irish locality, “ I found them identical, and it strikes me forcibly that I have passed it over in several other glens.”

I am not aware of its having yet been recorded as inhabiting England or Wales.

This species is described by Willdenow, Decandolle, Vaucher, Diedrich, and other authors, as *E. umbrosum*, and by Sir William Hooker and Mr. Babington as *E. Drummondii*. It is well figured by Vaucher† in all its states ; the figure in ‘English Botany’‡ represents the fertile and barren stems correctly, but neither in the figure nor description do I observe any reference to the combination of fruit and branches on the same stem. Diedrich’s figure§ has fruit and branches on one stem, but neither separate.

The roots and rhizoma precisely resemble those of the preceding species, the former being small, fibrous, sinuous, often divided, and black ; the latter dark brown and striated, and extending horizontally.

The stems are of three kinds — *first*, bearing fructification only ; *secondly*, bearing fructification and branches ; and *thirdly*, bearing branches only. The fertile stems are four to six inches in height,

* Hooker in ‘English Botany’ Supp. 2777.

† Monographie des Prêles.

‡ Eng. Bot. Sup. 2777.

§ Deutschlands Kryptogamische Gewächse.

slightly striated when living, more evidently so when dried ; they are of a pale whitish-green colour : the sheaths are very large and loose, and nearly white, in some specimens almost of an ivory whiteness, with a brown ring at the base of the teeth, which are from fifteen to twenty in number, long, almost setiform, *very slightly* flexuous, pale brown, and furnished with dilated, membranous, almost transparent, whitish edges. The catkin is terminal, oval, and of a very pale brown colour ; at first it appears sessile, but when mature its footstalk is very obvious : the scales are forty or fifty in number ; in figure they are somewhat hexagonal, and have a conspicuous central depression, surrounded by six or seven nearly circular and slightly convex departments. The catkin is ripe in April.

When the stem bears both fructification and branches, a character overlooked by British botanists in their descriptions, but one of common though not constant occurrence, the branches are disposed in whorls four to six in number, the first being placed at the base of the uppermost sheath, and the others following in succession : the sheaths are smaller than in those stems which are fertile only, and larger than in the barren stems. I am indebted to Mr. Cameron, of the Birmingham Botanic Garden, for specimens in this state, gathered while the catkin was still in perfection.

The barren differs from the exclusively fertile stem in having the sheaths much smaller and more distant ; the teeth also are shorter, fewer in number, and less pointed. The barren stem is usually divided into about twenty joints, of which the four or five lower ones are branchless, but each of the others is furnished with a whorl of branches varying in number from ten to sixteen in each whorl. These branches at first are somewhat recurved and drooping, as in *E. sylvaticum*, but they afterwards become spreading and slightly ascending ; they are simple, and composed of eight or ten joints, of which the basal one is the shortest, being a mere sheath ; the second is sinuous : they are usually triangular, and the loose sheath which accompanies each joint terminates in three obtuse teeth, which have the extreme tips brown. The ridges of the stem and branches are beset with minute flinty particles, which give the plant a rougher feel than the preceding.

Sir W. J. Hooker observes—" Its nearest affinity is doubtless with *E. arvense*, but it is abundantly distinct. Its colour is greener and less glaucous ; its stem rougher, with closely-set raised points ; its angles and branches much more numerous ; and the whole barren frond is singularly blunt in its outline or circumscription at the extremity, by which it may be at once known from *E. arvense*. The sheaths,

though paler at the base, have blacker and more prominent ribs upwards, and they are so close as almost to imbricate each other. The teeth are also more numerous, when they separate into their proper number.”* I quite agree with this profound botanist in considering the present species abundantly distinct from *E. arvense*; indeed the similarity to that plant does not appear to me particularly obvious: my idea of what would be termed “its affinities” will perhaps be sufficiently expressed by my placing it between *E. sylvaticum* and *E. Telmateja*.

EDWARD NEWMAN.

(To be continued.)

ART. CLXII.—*Notes on an old volume of Coloured Impressions of Plants.* By W. G. PERRY, Esq., F.B.S.E., &c.

A CURIOUS old collection of impressions of plants, slightly coloured, lately came into my possession. Although it is roughly executed, the character of the plants is well preserved. There are about five hundred and sixty species, contained in a foolscap folio volume of 370 pages. The names appended to the plants are evidently copied from the *second* edition of Ray's Synopsis; which, from the circumstance of its being published in 1696, and the *third* edition in 1724, shows that the collection was made in the early part of the last century.

It appears from the localities named that the book belonged to some one living in the neighbourhood of Knutsford, in Cheshire. If any Cheshire botanist can afford information respecting the original owner of the volume, it would afford me considerable gratification.

I flatter myself that the following localities, transcribed (without correction of errors) from this old Cheshire herbal, may not be unacceptable to some of your readers.

Acorus Calamus, L. “In the moat at *Holford hall* it grows plentifully, also at *Over Tabley*, both these places lying betwixt *Knutsford* and *Northwich* in Cheshire.”

Adoxa moschatellina, L. “In the Common Moor by *Knutsford* plentiful.”

Aquilegia vulgaris, L. “In agro secundo ultra domum *Anson House* dictum prope *Booth-wood* ab *Knutsfordiense* circiter unum milliare inveni.”

Asperula cynanchica, L. “Juxta ambulacrum novum inter *Knutsford* et *New Tatton* provenit.”

Atriplex marina, L. “Propè *Warrington* observabit *Mr. Robert Chetham* et ad me attulit.”

Botrychium Lunaria, Sw. "In agris magnis ubi semiter est ducens ab *Knutsford* ad *Old Tatton*, inter *the Lane* et *the Mear*, non impossibile invenire erat Anno Dom. 1747."

Chenopodium olidum, Curt. "In horto Josepho Nixon seniori appertinente copiosissimè provenit, et adeo ei fere pestis est."

Chlora perfoliata, L. "Inter *Knutsford* et *New Tatton Hall* in novâ ambulacrâ non longè a posteriori inveni."

Chrysosplenium alternifolium, L. "By the brook at *Chelford*."

Convallaria multiflora, L. "In *Lower Pever* near *Pooldam*."

Cynoglossum officinale, L. "In via publica apud *Chelford* ut abiis ad *Capestone*."

Digitalis purpurea, floribus albis. "Hæc in agro inter *Knutsford* et *Tatton* inveni."

Erigeron acris, L. "In agris magnis sterilibus inter *New Tatton Hall* et *Knutsford* non longè a priori copiosè provenit."

Geranium columbinum, L. "In via inter *Knutsfordiensem* et *Novum Tattonium* copiosè inveni."

Geum rivale, L. "Juxta rivulo *Peover High* dicto copiosè inveni."

Hypericum Androsæmum, L. "Near *Middlew*(* * *), and also near *Macclesfield*."

Hypericum elodes, L. "Inter *Rud-heath* et *Lower Peover* in loco ubi aquæ stagnant, et in ericeto *Knutsfordiensis* juxta lacum *Cookstool-pit* dictum sed rarius."

Hypericum pulchrum, L. "Juxta *New Tatton Hall* copiosè inveni, et in *Bexton Lane* multisque aliis locis propè *Knutsford*."

Inula Helenium, L. "Juxta locum ubi *Old Booth Hall* stabat provenit."

Lysimachia vulgaris, L. "Circa *Tatton Mear* copiosè provenit, et alibi circa *Knutsford*."

Mentha arvensis, L. ? "In agro inter *Knutsford* et *Tatton* non longè a priori copiosè inveni."

Myrica Gale, L. "Circa *Knutsford Cestriensis* comitatu copiosè provenit."

Narthecium ossifragum, Huds. "Juxta scrobem inter *Old* et *New Tatton* inveni, et etiam super *Mear Heath* copiosè."

Ophioglossum vulgatum, L. "In horto of *Pet. Lee* inveni."

Osmunda regalis, L. "Juxta *Tatton Mear* propè *Knutsford* provenit."

Paris quadrifolia, L. "In agro primo vel 2o. ultra *Lower Peover Church* provenit sed rarior."

Petasites vulgaris, Desf. "About *Bollin* as you go from *Knutsford* to *Altringam*; below the old church at the side of *Booth-brook* plentifully."

Polygonum Bistorta, L. "Propè *Knutsford Cestentriensis* comitatu variis in locis; ut in prato infra *Anson House* propè *Boothwood* copiosè inveni; inter *Tatton* et *Rosthern* in agro non longè a priori."

Radiola Millegrana, Sm. "Super *Rud-heath*, *Shaw-heath*, et *Knutsford*. Juxta lacum *Cookstool-pit* dictum copiosè inveni."

Saxifraga granulata, L. "In rivulo *Booth-brook* dicto."

Saxifraga Hirculus, L. "Found by my very good friend Dr. Kingstone on *Knutsford Moor*, and there shewed to Dr. Richardson by him; now growing in plenty."

Solidago Virgaurea, L. "Circa *New Tatton Hall* variis in locis observavi."

Spergula nodosa, L. "In the common moor by *Knutsford*."

Taraxacum officinale, γ. *lavigatum*, Bab. ? "In colle *Adamp*(***)ill dicto propè *Knutsford* inveni."

Tragopogon minor, Fries. "In prato magno in sinistrum semitæ ut abiis ab *Tost Hall* ad *Lower Peover* non longè a priori provenit."

Triglochin maritimum, L. "Propè Warrington observabit et ad me attulit Mr. Robertus Chetham."

Vaccinium Oxycoccus, L. "In Cheshire vulgo *Cramberries*."

Vaccinium Vitis-Idæa, L. "Super *Mear Heath* propè *Knotsford* inveni copiosè."

Viola palustris, L. "In *Knotsfordiensis* palude com. inveni variis in locis."

W. G. PERRY.

Warwick, July 17, 1843.

ART. CLXIII. — *List of the Cryptogamic Plants of Oxfordshire.*

By PH. B. AYRES, Esq., M.D.

(Continued from page 664).

- | | |
|--|---|
| <i>Marchantia polymorpha</i> . Moist shady places, common, <i>Baxter</i> . | <i>Jungermannia platyphylla</i> . Old walls &c. common, <i>Baxter</i> ; trunks of trees, Stokenchurch woods, <i>Dr. Ayres</i> . |
| ——— <i>conica</i> . Shotover plantations, <i>Baxter</i> . | ——— <i>dilatata</i> . Trunks of trees, common. |
| <i>Jungermannia setacea</i> . Shotover hill, <i>Baxter</i> . | ——— <i>Tamarisci</i> . Headington quarry, <i>Baxter</i> . |
| ——— <i>asplenioides</i> . Shotover plantations, Bagley wood, <i>Baxter</i> ; Stokenchurch hill, <i>Dr. Ayres</i> . | ——— <i>pinguis</i> . Shotover hill, <i>Baxter</i> . |
| ——— <i>Sphagni</i> . Shotover hill, <i>Purton</i> . | ——— <i>multifida</i> . Shotover hill, <i>Baxter</i> . |
| ——— <i>crenulata</i> . North side of Shotover hill, <i>Baxter</i> . | ——— <i>Blasia</i> . North side of Shotover hill, <i>Baxter</i> . |
| ——— <i>bicuspidata</i> . Moist places, <i>Baxter</i> . | ——— <i>epiphylla</i> . Shotover hill, Bagley wood, <i>Baxter</i> ; Thame and Stokenchurch woods, <i>Dr. Ayres</i> . |
| ——— <i>connivens</i> . North side of Shotover hill, <i>Baxter</i> . | ——— <i>furcata</i> . Shotover hill, Bagley wood, <i>Baxter</i> . |
| ——— <i>incisa</i> . Shotover hill, <i>Purton</i> . | <i>Riccia crystallina</i> , β . <i>glauca</i> , Hook. Old gravel pits, St. Clement's, and bogs on Bullington green, rare, <i>Baxter</i> . |
| ——— <i>pusilla</i> . Bagley wood, rare, <i>Baxter</i> . | <i>Anthoceros punctatus</i> . North side of Shotover hill, <i>Baxter</i> . |
| ——— <i>nemorosa</i> . Shotover hill, <i>Purton</i> . | <i>Bæomyces roseus</i> . Bagley wood, <i>Baxter</i> . |
| ——— <i>albicans</i> . North side of Shotover hill, <i>Baxter</i> . | ——— <i>rufus</i> . Shotover hill, <i>Baxter</i> . |
| ——— <i>complanata</i> . Trees, very common. | <i>Calicium tympanellum</i> . Bagley wood &c. <i>Baxter</i> . |
| ——— <i>polyanthos</i> . Shotover hill, <i>Baxter</i> . | ——— <i>sphærocephalum</i> . Bagley wood &c., <i>Baxter</i> ; Thame, <i>Dr. Ayres</i> . |
| ——— <i>viticulosa</i> . Shotover hill, <i>Sibthorp</i> . | ——— <i>aciculare</i> (E. B. 2053). Bagley wood &c., <i>Baxter</i> . |
| ——— <i>bidentata</i> . Damp places, common. | ——— <i>debile</i> . Bagley wood &c., <i>Baxter</i> . |

- Calicium peronellum*. Near South Hinksey, *Baxter*.
- Arthonia astroidea* (E. B. 1847.) Smooth bark, common, *Baxter*.
- Opegrapha varia*. Bark of old trees, *Baxter*.
- *epipasta*, β . *microscopica*, Ach.
On young oaks, *Baxter*.
- *rufescens*. On ash trees, Bagley wood, *Baxter*.
- *atra*. Trunks of trees, *Baxter*.
- *scripta*. Ditto.
- *dendritica*. Trunks and branches of trees, *Baxter*.
- *elegans*. On holly bark, Bagley wood, Shotover plantations, *Baxter*; Penleigh Hollies, *Dr. Ayres*.
- Verrucaria epidermidis*. On birch trees, Christ Church meadow, *Baxter*.
- β . *analepta*, Ach.
In the same locality, *Baxter*.
- *cinerea*. Smooth bark of trees, Bagley wood, Magdalen College cupse, *Baxter*.
- *nitida*. Ash trees, Bagley wood, *Baxter*.
- *nigrescens*. Walls &c. common, *Baxter*.
- *rupestris*. On stones, Shotover hill, Bagley wood, *Baxter*.
- *biformis*. On old willows near Childswell, *Baxter*.
- Endocarpon miniatum*. Headington quarry, very rare, *Baxter*.
- Pertusaria communis*. Bark of trees, com.
- *fallax*. Bark of trees, *Baxter*.
- Thelotrema lepadinum*. On holly and oak, Bagley wood, *Baxter*; Penleigh Hollies, *Dr. Ayres*.
- Lepraria flava*. Bagley wood &c., *Baxter*.
- *viridis*. Common everywhere.
- *alba*. Trunks of trees, &c., *Dr. Ayres*.
- Spiloma gregarium*. Trunks of trees, common, *Baxter*.
- *murale*. Walls, Bullington green, *Baxter*.
- Variolaria faginea*. Trunks of trees &c. common.
- *discoidea*. Trunks of trees &c. common.
- Urceolaria scruposa*. Old walls and stones, *Baxter*.
- *calcareae*. Ditto.
- *cinerea*. Ditto.
- Lecidea atro-alba*. On stones &c., *Baxter*.
- *fusco-atra*. Ditto.
- *lapicida*. Stones, Shotover hill, *Baxter*.
- *confluens*. Ditto.
- *parasema*. Bark of trees, &c. common.
- *immersa*. Stones and rocks, *Ba*.
- *quernea*. Trunks of trees, *Ba*.
- *viridescens*. Moss, stones, &c. *Baxter*.
- *incana*. Trunks of trees, *Baxter*.
- *rupestris*. Walls and stones, Shotover hill, Cheney lane, *Baxter*.
- *vernalis*. Trunks of trees, *Baxter*.
- *icmadophila*. Shotover hill, *Ba*.
- *marmorea*. Ditto.
- *ulmicola*. Stones and trees near Shotover hill, very rare, *Baxter*; Rycot's park, *Dr. Ayres*.
- Lecanora atra*. Trees and tiles, *Baxter*.
- *subfusca*. Common on bark.
- *Parella*. Stokenchurch, on trees and stones, rare, *Baxter*.
- *Turneri*. Bagley wood, very rare, *Baxter*.
- *cerina*. Trees, rare, *Baxter*.
- *vitellina*. Trees and old rails, common, *Baxter*.
- *Hæmatomma*. Trees, Bagley wood, very rare, *Baxter*.
- *crenulata*. Walls and stones, Cheney lane, *Baxter*.
- Psora cæruleo-nigrescens*. Headington quarry, very rare, *Baxter*.
- *decipiens*. Ditto.
- Squamaria saxicola*. Walls & stones, *Ba*.
- *circinata*. Walls of Botanic Garden, bridge on the Botley road, *Baxter*.

- Squamaria candelaria*. On trees, *Baxter*.
 ——— *β. polycarpa*, Hook.
 Trees, Christ Church meadow, *Baxter*.
- Placodium canescens*. Trunks of trees, *Baxter*; Thame, *Dr. Ayres*.
- Parmelia virella*. Trunks of trees, common, *Baxter*.
 ——— *caperata*. Trunks of trees, not uncommon, *Dr. Ayres*.
 ——— *perlata*. Trunks and branches of trees, common; rare in fruit.
 ——— *olivacea*. On trees, &c., particularly on dead fences and posts, *Dr. Ayres*.
 ——— *parietina*. Everywhere.
 ——— *pityrea*. Trunks of trees, *Baxter*.
 ——— *saxatilis*. Trees, common, *Baxter*.
 ——— *pulverulenta*. Trees and shrubs, common.
 ——— *stellaris*. Trees and shrubs, rare, *Baxter*.
- Sticta pulmonaria*. Bagley wood, very rare, *Baxter*; Stokenchurch woods, not uncommon, *Dr. Ayres*.
- Collema nigrum*. On stones, Bullington green, *Baxter*.
 ——— *crispum*. On old walls, *Baxter*.
 ——— *fasciculare*. Walks of the Botanic Garden, Oxford, *Baxter*.
 ——— *palmatum*. On the ground, *Baxter*.
 ——— *granulatum*. Old walks, *Baxter*.
 ——— *nigrescens*. Trunks of old trees, *Baxter*; on willows, Thame, *Dr. Ayres*.
 ——— *lacerum*. On the ground among moss, *Baxter*.
- Solorina saccata*. Headington quarry, very rare, *Baxter*.
- Peltidea canina*. Heaths, woods, &c., *Baxter*.
 ——— *rufescens*. Heaths, woods, &c., *Baxter*.
- Nephroma resupinata*. Bagley wood, exceedingly rare, *Baxter*.
- Borreria tenella*. On almost every tree and shrub.
 ——— *ciliaris*. Trunks of trees, *Baxter*; Thame, *Dr. Ayres*.
- Evernia prunastri*. Trunks of trees, common.
Ramalina fraxinea. Trees, common.
 ——— *fastigiata*. Trees, common.
 ——— *farinacea*. Trees, common, but rare in fruit.
- Usnea plicata*, *β. hirta*, Ach. Trees and bushes in woods, Bagley wood, *Baxter*.
 ——— *barbata*, *β. articulata*, Ach. Bagley wood, very rare, *Baxter*.
- Cornicularia aculeata*. Shotover hill, *Baxter*.
- Cladonia furcata*. Shotover hill, Bagley wood, *Baxter*.
 ——— *rangiferina*. Shotover hill, Bagley wood, *Baxter*; Thame and Stokenchurch hills, *Dr. Ayres*.
 ——— *pungens*. Shotover hill, Bagley wood, *Baxter*.
- Scyphophorus alpicornis*. Heaths, rare, *Baxter*.
 ——— *pyxidatus*. Woods, &c., common.
 ——— *fimbriatus*. Heaths, &c., *Baxter*.
 ——— *radiatus*. Heaths & woods, *Baxter*.
 ——— *cocciferus*. Bagley wood, rare, *Baxter*; on a stump near the road from Stokenchurch to Cadmore End, rare, *Dr. Ayres*.

(To be continued).

B. AYRES.

ART. CLXIV.—*Notice of 'The Botany of the Malvern Hills, in the Counties of Worcester, Hereford, and Gloucester; with the Precise Stations of the Rarer Plants, and Introductory Observations on the General Features, Geology, and Natural History of the District.* By EDWIN LEES, F.L.S., &c. &c. London: Tilt and Bogue, Fleet Street; and H. Lamb, Malvern. 1843.

MR. LEES has been so long and so well known as an ardent botanical explorer, as well as for his persevering efforts to popularize his favourite science, that to our readers any other introduction than the mere mention of his name would be quite superfluous. 'The Botany of the Malvern Hills,' as may be learned from its title, is strictly a local Flora of that rich district, and presents a record of the harvest yielded to the author's personal researches during a residence of several years in the neighbourhood. The following passage will explain the pains taken to render this as correct and complete as possible.

"Although the present work is scarcely more than a catalogue, it has taken the labour of years to survey and resurvey the ground minutely, and a multitude of studious hours have been spent in determining the less obvious and dubious plants. I think therefore, I may safely say, that there is no mistake in the Phanerogamous productions, most of which have again and again passed under my review, and I have excluded several species because evidently introduced, my object being to show the really indigenous Flora of the hills. It is true I have admitted a few agrarians, but these are perhaps as old as the introduction of corn, and therefore not undeserving attention. All the plants are to be understood as having been *gathered by myself*, except in the few instances where I rely upon the authority of friends who have sent me specimens.

"The Cryptogamic productions of the hills are so varied and curious, that I have taken especial note of them, and I much regret that the limits necessarily assigned to the present publication, have precluded my entering into the details respecting them I desired to do. I can hardly assert that in this intricate department I have been in every case correct in my designations, but I have consulted all the aids in my power. I have deposited specimens of all, or nearly all, the plants I gathered in the herbarium of the Botanical Society of London, so that botanists may easily refer to any of them, in case a doubt should arise to render it necessary."—*Preface*, p. vii.

The full reports of a paper by Mr. Lees* on the Botany of this district, which have already appeared in our pages, render it unnecessary for us to follow the author through his "Introductory Remarks;" we must, however, give the following extract.

"A good relieving artistical feature is given to the hills at all times by the fallen stones in the ravines, for though these are shapeless enough close at hand, and with

* Read before the Botanical Society of London: see *Phytol.* pp. 152, 206, & 207

small pretensions to beauty, yet in the distance they assume a deep purple hue, which contrasts well with, and breaks the uniformity of the green turf. In the summer, the immense quantities of foxglove give a rich pink hue to the rocky slopes they cover, often mixed with the tall golden torches of the great mullein; while in other spots a purple mantle is created by the flowering of the wild thyme. As autumn slowly approaches, the gorsy patches sparkle most refulgently, though their golden splendour is somewhat chastened by the burnt umber of the withered brakes extending far and wide, and scorched by the blaze of August. In May, the hawthorns and mountain ashes wave on the sides of many of the ravines in milk-white purity, while in autumn their pendant coral berries give another phase of beauty to the inspiring and diversified scene."—p. 3.

We observe from the Enumeration given by Mr. Lees, that since his paper was read before the Botanical Society, he has added to the Malvern list 34 species of flowering plants and 112 species of Cryptogamia, thus raising the entire number from 1438 to 1584.

The plants are distributed in the three grand divisions of Exogens, Endogens and Acrogens; and under each of these primary divisions they are arranged according to the Linnæan system, of which Mr. Lees has always been the champion. We are also glad to see that the artificial system of the illustrious Swede is not without advocates among others who hold high rank in the science of Botany; and that there are still some left, who would regret to see that system consigned to unmerited oblivion, because it has not effected what it was never intended for, and consequently what we had no right to expect from it. Let it not be supposed that we are advocating the Linnæan system in consequence of being so prejudiced in its favour as to be blind to the merits and the excellences of other methods—this would be falling into the very error we are deprecating; we only ask for fair play—we claim for the Linnæan system a fair and unprejudiced examination, conducted in a spirit of candour, and with an especial reference to the end proposed by Linnæus in framing it, not forgetting that we are most undoubtedly indebted for the present advanced state of botanical knowledge, to the invention and operation of this system at a period when hardly any other means would have answered the same end. This examination we claim for the Linnæan system; for we cannot help suspecting that perhaps nine-tenths of those who so loudly and so clamorously decry it, are entirely ignorant both of the system itself, of its practical working, and of the debt of gratitude due to its illustrious author, from the present and all succeeding generations of botanists. A passage on this subject from the pen of Mr. Babington has already graced our pages, (*Phytol.* 642); and we think we could not select a fitter place than this, for giving an extract on

the same subject, from Professor Forbes's admirable 'Inaugural Lecture on Botany.'*

"The history of Botany, from the time it first assumed a scientific character to its palmy state in the present century, is more instructive than that of any of the other Natural-history sciences, though later in its development ; for among the ancients, its most eminent votaries, Theophrastus and Dioscorides, were rather herborists than botanists, and originated no grand generalizations like those which gave the first impulse to zoological science, nursed by the giant mind and indefatigable research of Aristotle. But though Zoology started with the speed of the hare, Botany, like the slow tortoise, at length overtook it in the race, and the heavy volumes of Bauhin, Gerarde and Cæsalpinus, were all so many steps on the way. It first quickened its speed as a science of observation. Ardent naturalists went forth into foreign climes, and collected their vegetable products with indefatigable industry, noting carefully their living forms and hues. Others, tied down by the trammels of home-occupation, gathered the plants of their native countries and recorded their variations. Confused ideas of natural affinities clouded their early arrangements, but from the material so accumulated truer notions were in time generated. The good and kind-hearted, rather than the strong-minded, were the first votaries of the science. The gentleness of the pursuit was adapted to the kindliness of their natures. Their earnest unbiassed studies, originating in the admiration of the wonders and beauties of creation, and deep reverence for the great Origin of all things, were the corner-stones of botanical science, and on such a sound and firm foundation the superstructure could not fail to be nobly and speedily raised. In time the building was commenced ; Ray, Tournefort, and a host of lovers of nature laid the first stones. Linnæus and Jussieu were the chosen architects.

"The great Swede, whose many-sided mind made all the science of his time contribute to his grand purpose of developing the system of Nature, saw at a glance, that though there was much material collected, more must be continually gathering, and that to make good and rapid use of what had been drawn together, machinery was wanting.

"*Instrumentis et auxiliis res perficietur: quibus opus est nihilominus ad intellectum quam ad manum.*†

"Linnæus invented the required instruments and aids. Whilst he taught that the grand aim of Botany should be the discovery of the true arrangement of plants in Nature, and boldly sketched his idea of what he conceived that arrangement would prove to be, — in order that such great end might be the more speedily attained, he devised two ingenious artificial schemes, which, as he foresaw, led to the desired results. These were the binomial nomenclature, and the classification of plants according to the number or arrangement of their sexual organs.

"The first of these inventions, the simplicity of which is that characteristic of all the creations of genius, became the greatest means of furthering the progress of Natural History. It was endowing it with a universal language, in which all its followers might converse with perfect mutual understanding. The distinctions of nation

* An Inaugural Lecture on Botany, considered as a Science, and as a Branch of Medical Education. Read in King's College, London, May 8th, 1843. By Edward Forbes, F.L.S., F.B.S.E., &c. &c., Professor of Botany in King's College, London. London: John Van Voorst, 1, Paternoster Row ; B. Fellowes, Ludgate St.

† Bacon, Nov. Org. lib. i. aph. 1.

and tongue were abolished by this admirable scheme, the universal and simultaneous adoption of which at once proclaimed its own excellence and that of its author.

"The second was, as it were, the making of an index to a great section of the book of Nature. Those who slightly think of the Linnæan system, as it is termed, forget in the present to look back fully and fairly on the past. They should remind themselves of the state in which Botany was when Linnæus undertook to make its treasures consultable. The understanding of things depends greatly on the perception of their order and relations. When that order and those relations require deep study ere we can comprehend them clearly, the man who gives us a clew, however insignificant it may be in its own nature, is not only conferring on us an invaluable benefit, but endowing the despised instrument with golden value. Such a clew did Linnæus give when he put forth the sexual system. The scientific systematist, surrounded by the stores of his herbarium, should not forget that those treasures were often amassed in the first instance by adventurous and earnest men, rendering good service by their hands and energy, as good in its humble way as that which he gives by his head and philosophy. It was not to be expected of such men that in the field they should occupy themselves with thoughts of arrangement or affinity; their part was to observe and select, and the guide to their observation and selection was no other than the Linnæan system. In the scientific hive as in the apiary, there must be working-bees and nenters as well as queens and drones: it is necessary for the economy of the commonwealth. An easy means of acquiring and arranging information is a great help to the workman of science, and no department has gained more thereby than Botany, which, through the facilities afforded by the artificial method devised by Linnæus, has had its facts amassed in enormous quantity for the use of its more philosophic votaries, and owes its present advanced state in a great measure to such humble means.

"The clew to the labyrinth, then, having served such noble purpose, becomes a consecrated object, and should rather be hung up in the temple than thrown aside with ignominy. The traveller returning from his adventurous and perillous journey of discovery, hangs up his knapsack with affection on the walls of his study. But travellers must return to the fields, if more is to be done; and so must botanists, and each must have recourse again and again to those helps which aided them so well in their earliest journeys.

"In saying these few words in favour of the Linnæan system, I know I am pleading an unpopular cause: but I speak out freely, partly because I mean to proceed on a different basis in conducting the botanical studies here, and partly because, after the once over-enthusiastic attachment to the Linnæan method which prevailed so long in Britain, and which was carried so far as to impede the progress of Botany, a reaction has taken place which threatens to blind the eyes of the younger botanists to the merits of a device which was, and ever will be, a most valuable auxiliary of the science."

—p. 16.

We have with great pleasure followed the learned Professor through the above able and candid defence of the Linnæan system. This defence is doubly valuable, both as emanating from so high a quarter and as being perfectly disinterested on the part of the Professor; from these circumstances we consider the defence to derive additional importance, and to be entitled to additional respect and consideration. The time is past when the mere facility of finding out the name of a

plant and referring it to its proper station in a system is to be looked upon as the sole end and aim of botanical research; but why should we not use the easiest means of acquiring the true end? The votaries of the so-called natural method are confessedly obliged to have recourse to artificial schemes, in order to determine the names and stations of the comparatively small number of species indigenous to Britain. We would by no means be understood to wish that Botany should be taught exclusively by the Linnæan method; but so long as artificial systems are required, and it seems that in Britain at least we are not yet able to do without them, we would ask, why not avail ourselves of that which is unquestionably the best of all hitherto devised? The object of all artificial systems of Botany we apprehend to be the same, namely, the enabling the student to ascertain with ease and certainty the name of any plant he may meet with; this step gained, the student is in possession of a clew which will enable him to follow out the subject in its remotest bearings. The Linnæan system, used, as its author intended it should be used, as "an index to a great section of the book of Nature," appears to us superior in the grand requisites of applicability and certainty to any other artificial scheme with which we are acquainted; and thus used, the Linnæan system, as Professor Forbes has well said, will ever be "a most useful auxiliary to the science." After thus stating the true aim and end of the Linnæan system, the Professor continues.—

"The aim of Jussieu was of a different kind. Gifted with a highly philosophic mind, he concentrated its powers mainly on one subject. His devotion produced great results. He placed the study of the natural affinities of plants on a practical basis, and originated those views afterwards more fully developed by DeCandolle and other distinguished men. The spirit of Jussieu has presided over the greatest botanical works down to the present day, and his influence is as powerful now as when he first expounded to his delighted pupils just views of the vegetable kingdom.

"The genius and doctrines of Linnæus and Jussieu having placed Botany on a sure scientific basis, hosts of labourers crowded to the field, and the enthusiastic pupils and admirers of those great men went forth observing and collecting over every discovered land. The facts they added demanded new research and modified arrangements. Still the great stage of *classification* had been attained, and the science was to enter on the third æra of its existence, that of *philosophical investigation*. In that æra we now live. Its characters are—the observation of facts, not so much for their own sakes as for the illustrations they afford of the laws of the science; careful experimental inquiries into the phenomena of vegetation, not undertaken as isolated researches, but with a view to their comparison with vital phenomena throughout animated nature; minute anatomical investigation under the microscope, not conducted merely to display new forms of structure, but in the hope of solving, if possible, the problem of the ultimate structure of tissues; the construction of local floras and publication of local catalogues, not with the limited view of assisting the inhabitants of a province to a knowledge of

their vegetable compatriots, or with the pardonable vanity of showing how many fine plants grow in the author's country, but in order that the great laws of the distribution of organized beings on the surface of our globe may be discovered and developed; and the construction of systematic arrangements, not framed solely for the ascertaining of the natural alliances of families, important as such object is, but also with the view of discovering the great laws which doubtless regulate those alliances equally in the animal and vegetable kingdoms."—p. 19.

It has always appeared to us that those who are the loudest in their outcries against the Linnæan system; must be unacquainted with, or to say the least, forgetful of, what Professor Forbes has not omitted to notice, namely, the well-established fact, that while Linnæus was endeavouring to perfect his artificial system, as a means whereby a chaotic mass of materials might be reduced to order, he was no less assiduously labouring to discover the true laws of a natural arrangement, and this, he ever insisted, ought to be the grand aim of the researches of every botanist. Thus, in his '*Philosophia Botanica*,' after enumerating the different systems and methods of his predecessors and contemporaries, as well as his own sexual system, and another method founded on the calyx, he observes:—"The fragments of a natural method are studiously to be sought for. This should be the grand desideratum with every botanist:" the necessity for endeavouring to attain this desideratum being enforced in other parts of the same work. He then proposes what he modestly calls the *fragments* of a natural method: these exhibit all the genera known to the author arranged in sixty-eight orders. There is, moreover, abundant evidence on record to prove that Linnæus himself was the *founder* of that system which has since been so much improved by the eminent botanists who have turned their attention to this branch of the science: such was the expressed opinion of the late Sir Joseph Banks; and Bernard de Jussieu, with all the candour of a great mind, says, in a letter to Linnæus,—“You may now devote yourself entirely to the service of Flora, and lay open more completely the path you have pointed out, so as at length to bring to perfection a natural method of classification, which is what all lovers of Botany wish and expect.”

We find that we have been strangely led away from the immediate subject of the present notice by this discussion; but we trust the digression needs no apology. In conclusion, we can honestly say that we heartily recommend Mr. Lees's very neat little book, to all who feel an interest in the subject of the geographical distribution of British plants, and more especially to the botanical visitants of Malvern.

ART. CLXV. — *Varieties.*

350. *Note on Linaria Cymbalaria.* On the 28th of May, 1841, my father called my attention to a curious circumstance respecting the ivy-leaved toad-flax, or Aaron's beard (*Linaria Cymbalaria*). — Having a plant in his study, dependant from a suspended flower-pot, he observed that all the flowers invariably turned towards the window, which faced the south. Immediately after the blossoms had fallen off, and the seeds began to perfect, the stems on which they were placed gradually turned round away from the light, to the back of the plant. Conjecturing the cause of this latter motion, he supposes they revert for the purpose of depositing the seeds. In order to understand this, we must recollect that the toad-flax is procumbent and pendulous, growing on old walls in its native state. Consequently it is necessary that the inflorescence, which uniformly projects from the wall, should after the fall of the corolla turn towards the back of the plant, in order to deposit the seeds on the wall, otherwise they would fall to the ground and perish. — *Robert Dick Duncan; Vale of Almond, Mid Calder, Edinburghshire, June 10, 1843.*

[The experience of our readers will suggest many other examples of this phenomenon: the Cyclamen offers a curious and interesting instance; and the common pim-pernel, being a trailing plant, is analogous to the case above mentioned. In Lindley's 'Introduction to Botany' in the chapter on "The Directions taken by the Organs of Plants," is the following passage on this subject:—"The ovaria often take a different direction after the fall of the corolla than they had before. Thus, during flowering, the ovarium of *Digitalis purpurea* was nodding like the flower, the direction of which it was compelled to follow. Immediately after the fall of the corolla, it turns upwards towards the light, to which it is attracted by its green colour. A contrary phenomenon is presented by the ovarium of *Convolvulus arvensis*. The flower is turned towards the sky: as soon as it has fallen, the ovarium takes a direction towards the earth, bending down the peduncle. This cannot be due to the weight of the ovarium, which is much lighter than its peduncle, but must depend upon its disposition to avoid the light, on account of its pallid hue, which is nearly the same as that of the root. In *Convolvulus sepium*, on the contrary, in which the ovarium is equally pale, its erect position is maintained, and the influence of *decoloration* counteracted by the greater affinity to the light of two large green bractæ in which it is enveloped."—p. 286.—*Ed.*]

351. *Note on Cystopteris alpina at Low Layton.* Having heard, about four or five years ago, that this interesting fern — all trace of which had been long obliterated by the reparation of the ancient wall on which it once grew luxuriant and plentiful — had again made its appearance in the original station, and that a specimen then recently obtained from thence had been exhibited at one of the Linnean meetings; I was induced to extend my wanderings as far as Low Layton

for the express purpose of endeavouring to obtain a sight of a plant, the identity of which had given rise to much difference of opinion among several of our most distinguished botanists, although I was entirely ignorant of the precise locality said to afford the little rarity. Numerous were my enquiries, and long and wearying my researches about "old walls;" and after hours of exertion I well nigh feared that my excursion would prove fruitless, when I was fortunately directed to an individual in the neighbourhood who knew the station well, and had recollection of the visits of metropolitan botanists in search of the plant, but who himself doubted its existence there at that time. However, on my proceeding thither by his direction, judge my great delight at beholding, without much trouble in searching for them, from thirty to forty specimens, some beautifully fruited, and all in a thriving state. Several others, I dare say, might have been detected on a more minute inspection. I contented myself with bringing away three or four plants only, one of which I have preserved in my herbarium, leaving the rest to repay the pains-taking of such others of the lovers of our ferns as might chance to bend their steps that way. Since the date above alluded to, I learn from a friend that the wall has again been repaired and beautified, and the plant apparently "destroyed" a second time; so that it may not perhaps just now be met with, although so well established does it seem to have been in that famed spot, and such the known tenacity of its existence, that we may well suppose it far from impossible that some future patient investigator may yet have the pleasure of recording its re-appearance at a remote day. My recollection of the circumstance of finding this fern has been refreshed by reading Mr. Newman's charming little note of his visit to Ham-bridge, in search of *Asplenium viride*, as recorded in the August number, (Phytol. 671). That gentleman, however, does not tell us he supposes that that plant, being alien to the entire Worcestershire district, is "probably only an escape from a garden," although in his elegant 'History of British Ferns' he mentions the like as his belief respecting the somewhat parallel case of the *Cystopteris* at Layton. Are the plants published under the names of *C. regia* and *C. alpina* in the Lancashire fern-list (Phytol. 477) identical with the Layton plant? — *Edward Edwards; Bexley Heath, Kent, August 4, 1843.*

352. *Cotyledon lutea*. Among several miscellaneous matters of botanical prints and tracts picked up at a sale some years ago, some part at least of which, I was told, had formerly been in the possession of the late Dr. Dyer, there occurred an odd number of the original

edition of 'English Botany,' which contained the plate of *Cotyledon lutea*, and at the foot of Sowerby's figure was written a memorandum in ink,—“*Specimens on Ashtead Park-wall near Epsom—indig: vide Hist. Epsom Appendix. 1824.*” As this species is still retained in our catalogues, although very dubious habitats only are given for it, and, as far as I am aware, the one just named is not among them, I should feel gratified, and so, doubtless, would other readers of 'The Phytologist,' to hear tidings of the plant or of the Epsom locality. Possibly some one of the readers of that useful journal may know the spot, or possess and could refer to the 'History of Epsom' alluded to, a work with which I am unacquainted.—*Id.*

[We also should feel great pleasure in learning the history of the specimens of *Cotyledon lutea* “on Ashtead Park wall near Epsom,” though we fear there is no chance of establishing their claim to be “indigenous” there. Our esteemed correspondent, Mr. G. S. Gibson, has kindly favoured us with some extracts from a note received by him from a friend residing in Somersetshire, which, although not amounting to positive evidence that the plant is really to be found in that county, yet carry with them such an air of probability, that we feel great pleasure in laying them before our readers. Mr. Gibson has not seen the specimen alluded to; but he informs us that the locality is “Blackdown Hill, three miles from Wellington, Somerset:” his correspondent says,—“The specimen that I have was gathered about six years since, and so completely answers the description and plate given of it in Smith and Sowerby's Botany, that I think we cannot be mistaken; it was a bright yellow, with a spike of flowers, but as they were not expanded, it is imperfect. At the time it was gathered there appeared to be only one root; since that time we have searched for it, but have always been unsuccessful.” This information is exceedingly interesting, since it points out a particular locality, to which especial attention should be paid by those who have the opportunity. Our information respecting the stations of this plant has hitherto been very vague, amounting to no more than that it was “Seen by Mr. Hudson, in the garden of a Mr. Clement, who received it from Somersetshire. Roots, given by Mr. Hudson to the Chelsea garden, have long flourished there, and from thence the figure in *Eng. Bot.* was drawn.”* In Turner and Dillwyn's 'Botanist's Guide' it is said to grow on “walls and rocks in the West Riding” of Yorkshire, on the authority of Mr. Tofield; and in a foot-note Mr. Turner says,—“Mr. Fairbairn informed me that the stock of this plant, now in the Chelsea garden, originated from a Yorkshire root introduced by Mr. Hudson.”† The above seems to be the sum of all that is known about this beautiful plant, as a British species; we should be truly glad to have its claims to that rank fully established.—*Ed.*]

353. *Pæonia corallina*. Since my enquiry respecting the existence of this species (Phytol. 580), through the condescension of a kind botanical friend I have been favored with an exquisitely beautiful and perfect specimen, obtained in May last from the Steep Holmes station, where I understand the plant, although become extremely scarce,

* English Flora, ii. 315.

† Botanist's Guide, ii. 692.

may possibly remain till future seasons, from the great difficulty of attaining it on the *perpendicular* cliffs, where it now grows. With regard to the Gravesend locality (Phytol. 689), I have several times endeavoured to obtain information of Betsam country-folk — no bad authorities in the case of a plant so well known as the pæony is to most persons; but my enquiries have not elicited that it has ever been seen within memory in a wild state anywhere in that neighbourhood. Of course, at this distance of time it is impossible to trace old Gerard's "conny-berry," or the grounds of farmer Bradley.—*Id.*

354. *Note on drying Plants for the herbarium.* Much of the discussion on the subject of immersing plants in hot water previously to drying them for the herbarium, appears to have arisen from the individuals who have practised it considering the principle intended for *general application*. Now four fifths of our native plants require nothing but care in changing the papers, to preserve both colour and form in the greatest perfection. And of these I have no doubt that the greatest part would be *injured*, rather than improved, by the hot water; *Galeobdolon luteum* for instance, (Phytol. 673): consequently they do not afford a fair test of the principle. It is with plants which defy the ordinary methods, such for example as several of the Rhinanthaceæ, that we must have recourse to something more than simply changing the papers; and the experience of myself and friends shows hot water to be that resource. Mr. Gibson's plan of applying artificial heat (Phytol. l. c.) is by far the best and speediest method yet made known for drying the generality of plants; but it will not do for certain species, especially succulent ones, any more than hot water is required for *Asperula* or *Barbarea*, which indeed suffer from its application. Experiment alone will indicate for what particular species the hot bath is necessary. In reference the remark on p. 677, I must beg to enquire what is the use of selecting the finest and most perfect specimens for drying, if we are subsequently to dissect and mutilate them, and so have all our work to do over again? Even if our intention in forming a herbarium were future dissection of the specimens, the hot water cure cannot interfere with their utility for that purpose, because with ordinary care the parts of fructification need not be wetted. In my own herbarium I preserve a perfect specimen to show the plant, and an inferior one, or some fragments, to cut up when I have occasion. *Ophrys apifera*, which is the only *Orchis* I have yet dried on the hot water principle, is perfect both in form and colour: the flowers were not immersed. *Lathræa squamaria* has de-

fied every method I have had the opportunity of trying. — *Leo. H. Grindon* ; *Manchester, August 7, 1843.*

355. *Note on Epimedium alpinum.* On the 19th of June last I visited Bingley, for the purpose of making myself better acquainted with the Carices &c. which grow in that neighbourhood, and more particularly *Epimedium alpinum*, as in Mr. Watson's New Guide (at p. 275) there is the following reference to that plant:—" *Epimedium alpinum*. Bingley woods, B. G. (is it still there?)" In reply to this question I would say that the plant, to my knowledge, has been in the neighbourhood of Bingley for more than twenty years, as I gathered specimens in that locality on the 7th of May, 1821, and again in 1834. In the fifth edition of Withering's 'Systematic Arrangement' (ii. 258), I find the following reference to Bingley woods:—"Mr. Hailstone, in Whitaker's Craven, observes that it certainly is not now to be found in Bingley woods." There is also something said on this plant in the 'Yorkshire Flora,' and in the *second* part of Watson's Guide, but as I have not these books at hand, and do not now recollect what is said, I will refer the reader to look for himself. How the *Epimedium* may have got into the neighbourhood of Bingley, I know not; but certain it is that that plant *is and has been in that neighbourhood for a great length of time*, and not confined to one particular place, since I have found it on both sides of the river. On the 19th of June last, Mr. Ainley showed me the plant growing on the left hand side of the river going from Bingley towards Leeds. When I gathered the plant in 1821 and 1834, I got it on the other side of the river, and much further from the town. I do not here make any attempt to prove that *Epimedium alpinum* is a true British plant, but merely to say, in answer to Mr. Watson's question, that the plant is still to be found in the neighbourhood of Bingley. — *Samuel Gibson* ; *Hebden Bridge, August 6, 1843.*

356. *Note on an apparently undescribed British Carex.* Perhaps you will allow me to trespass a little more on your pages, as I have a few remarks to offer on a *Carex*, which appears not to be described in any of our works on British plants. The plant I wish to notice is one that is mentioned by Mr. Lees, at p. 48 of his 'Botany of the Malvern Hills.' It is now some time since Mr. Lees sent me a specimen of his Malvern plant, and wished to have my opinion as to its specific identity. The specimen sent at that time was in a very young state, and I imagined it to be the same as my *Carex ovalis*, var. *bracteata*; however, Mr. Lees has sent me specimens of more complete growth, which prove it to be very different from that plant. A few days ago

I showed the specimens to Mr. Babington, who told me that he believed the plant was described by continental writers, and he thought he had seen continental specimens. To this plant I have given the provisional name of *Carex Malvernensis*, which will serve until we can make out whether the plant has been previously named or not. It differs from *C. ovalis* in having a leafy bractea, which is much longer than the spike; it also differs from that species in its fruit being somewhat different in form, and only half the size of that of *ovalis*.—*Id.*

357. *Note on Ranunculus hirsutus.* This appears to be a plant far from plentifully distributed. When diligently sought for on the authority of various local lists, it has uniformly eluded me; in fact, for some years I have ceased to search for it, and stumbled upon it at length only by accident, while driving the other day in the lanes between Thorpe-le-Soken and Great Holland, in the county of Essex, where it forms gay patches wherever the turf is pared away. In the salt marshes in the same neighbourhood the most conspicuous plants are *Statice Armeria* and *Limonium*, *Plantago maritima*, *Scirpus maritimus*, *Triglochin maritimum*, *Arenaria marina*, *Atriplex portulacoides*. The way-side plants next worth mentioning, after *Ranunculus hirsutus*, are *Onopordon Acanthium*, *Inula pulicaria* (a far less common plant than *I. dysenterica*), *Veronica polita* and *Erysimum cheiranthoides*.—*W. L. Beynon; Down Hall, near Harlow, August 7, 1843.*

358. *Note on Epilobium roseum.* This plant is, I fancy, frequently overlooked by herborisers. My acquaintance with it commenced, I suspect, many years ago, by the side of a brook running into the Trent, near Barton-under-Needwood, in Staffordshire, though it was not till yesterday that I satisfactorily determined the species, upon again noticing the same plant growing with its congeners, *E. hirsutum* and *E. parviflorum*, along the banks of a stream called the Pincey, not far from its junction with the Stort, near Harlow, Essex. It may be detected at some distance, by the thin and delicate character of the leaves, the reddish hue of the lower part of the stem, and, above all, by the rosy, drooping, half-closed flowers. As plants of the same neighbourhood I may specify *Bupleurum rotundifolium*, *Trifolium ochroleucum*, *Campanula glomerata*, *Linaria minor*, *spurium* and *Elatine*, *Galeopsis Ladanum*, *Chlora perfoliata*, *Gentiana Amarella*, *Mentha Pulegium*, *Euponymus europæus*, *Cichorium Intybus* and *Verbena officinalis*.—*Id.*

359. *Note on a new locality for Isnardia palustris, and on the small White Water-lily.* Having occasion to pass through the New Forest last week, and bearing in mind Mr. Pamplin's "Enquiry respecting 'Nymphæa alba minor,'" in the March No. (*Phytol.* 525), I

made a point of visiting the stream and pools at the entrance of the village of Brockenhurst from Lyndhurst. I found the *Nymphæa alba* there, in abundance, and in full flower, but not varying more than usual in size. I had, however, the satisfaction of seeing in one of the pools, and in a neighbouring bog, the rare *Isnardia palustris*, of which this is, I believe, the third known British station. I may add that I gathered a very small white water-lily, in the year 1810, in shallow water on the margin of Loch Ard near Aberfoil, in which, the size excepted, I could find no difference from the common *N. alba*. — *W. Borrer*; *Henfield*, August 12, 1843.

360. *Note on the Cerastium latifolium of the Linnean herbarium.* In 'The Phytologist' for the present month (Phytol. 677), Mr. Edmonston disputes the correctness of an idea expressed by myself in a former number (Id. 586), to the effect that the *Cerastium latifolium* of Smith and British botanists in general, is truly the species so named by Linnæus; and further, that the Shetland plant described and figured by Mr. E. (Id. 495) is only another form of the same species. My own copy of 'The Phytologist,' up to May last, being at present in the hands of a binder, I am unable to refer back to the exact words of either Mr. Edmonston or myself; but can state that the accuracy of my own opinion, as formerly expressed, was afterwards fully confirmed by a reference to the Linnæan herbarium. There are three specimens in that herbarium, labelled "latifolium" in the handwriting of Linnæus. One of these corresponds tolerably well with the figure and description of the Shetland plant, except that the leaves are elliptic varying to ovate (not orbicular, as their length is double their breadth), and that the peduncles vary from equal with the flower to twice or three times the length of the latter. The other two specimens depart more widely from Mr. Edmonston's Shetland plant, and are quite as well represented by that gentleman's figures of *E. alpinum*, as by his figure of the Shetland *E. latifolium*. These two specimens being single flowering branches, without root or capsule, do not show all the characters of the species, but they correspond very closely with my flowering specimens from Perth and Sutherland. Their leaves vary from lanceolate acute to elliptic obtuse. Their bracts are alike in size and form, being smaller and more acute than the leaves; but on one of the specimens the bracts have a broad membranous margin, while on the other specimen they are herbaceous. The peduncles are rather longer than the solitary flowers. In all three specimens there is a well-defined membranous margin to the sepals; but this margin is not broader in these specimens of *C. latifolium*, than is the mem-

branous margin of the sepals in the single specimen of *C. alpinum* which is preserved in the same herbarium, and also labelled in the handwriting of Linnæus. The specimen of *C. alpinum* appears quite glabrous to the naked eye, and has obtuse leaves, like some of my Highland and cultivated specimens of the same species. Mr. Edmonston is doubtless correct in supposing his Shetland plant to be the *C. latifolium* of Linnæus, but these specimens in the Linnæan herbarium show that he is quite wrong in the specific characters by which he proposes to distinguish *C. alpinum* and *C. latifolium*. Probably the best character will be found in the seeds; those of *C. latifolium* (from Perthshire and Sutherland) being muricate, while those of *C. alpinum* (from Perthshire) are simply rugose. *C. alpinum* has larger and paler seeds, with an oblique orifice to its cylindrical capsule. In *C. latifolium*, the ovate capsule has the orifice scarcely or not at all oblique; though I cannot assert that these characters (drawn from the form and orifice of the capsule) are constant in the living plants, and they are often lost in the process of drying the specimens. I write of the Linnæan specimens as they appeared to the unassisted eye, not having any magnifier at hand when inspecting them.—*Hewett C. Watson; Thames Ditton, August 12, 1843.*

361. *New locality for Jungermannia Turneri*, Hook. In May, 1842, while walking through Tilgate forest, Sussex, I was fortunate enough to gather *Jungermannia Turneri*, a species I believe found by no one previously, except by the original discoverer, the late Miss Hutchins, in Ireland.—*Edward Jenner; Lewes, August 21, 1843.*

362. *Surrey localities for Schistostega pennata*. In June, when at Farnham, Surrey, I had the good fortune to discover *Schistostega pennata*, in great abundance, in Mother Ludland's cave, in all its varied and beautiful colours. St. Catherine's Hill, Guildford, being of similar sandstone, I was induced to search for it there, and found it in the sand-martins' holes.—*Id.*

363. *Erratum at p. 592.* Will you have the kindness to substitute the name of "Mr. Edward Jenner, of Lewes," for that of "Dr. Edward Jenner," in the Report of the Microscopical Society, (Phytol. 592). I shall, perhaps, at some future time, explain my views as to the nature of *Gomphonema*, *Achnanthes*, *Cocconema*, &c., which I do not consider to be Zoophytes.—*Id.*

364. *A word on Lastræa spinulosa*. Mr. Babington, in his excellent 'Manual,' has the following remarks on the plant usually known by this name.—

"*β. linearis*; frond mostly erect scarcely more than twice pinnate often very narrow

its sides nearly *parallel* in the lower part, lobes nearly flat with a *wavy midrib*, *indusium* 'entire.' *A. spinulosum* (Sm.). Small forms of this are often called *A. dumetorum*. I am in doubt if these plants are distinct species or varieties, but require a more perfect knowledge of them than I now possess. It appears that the *A. spinulosum* (Willd.) is a different plant, having 'glandulose bristles' on its indusium; if therefore Smith's plant proves distinct it will require a new name, and I would suggest *Smithii* as highly appropriate."—p. 386.

It appears to me that this view of the case is untenable, and I am the more inclined to dissent from it, because Mr. Babington has, I fear, been misled by some previously published observations of mine. — Smith emphatically states that the frond of his *Aspidium spinulosum* is "triangular or deltoid;" it is thus figured in the 'English Botany,' (t. 1460); the authentic specimen in his herbarium has this form; and all the evidence arising from Smith's description, figure and specimen, convince me that a small frond of the plant we call *Lastræa dilatata*, was and is Smith's *Aspidium spinulosum*. Mr. Babington's *linearis* appears to me to be the *Polypodium spinulosum* of Withering, found in "bogs on Birmingham heath;" it is also the plant described by myself as "the *linear* type, erect, rigid, pale sickly green, lateral margins of the frond nearly linear, &c." This term (*linear*), apparently adopted by Mr. Babington (*linearis*), is I believe the only distinguishing epithet the plant ever received. Sir J. E. Smith's part in the transaction appears to have been to *misunderstand Withering*, and that, surely, does not entitle him to the proposed honour. Had Mr. Babington proposed to call the plant *Lastræa Witheringii*, as a compliment to the original describer, no objection could have been raised; but in the present instance the proposed honour appears to me to be misapplied, and I hope Mr. Babington will allow the plant, if raised to the rank of a species, to bear the name of *linearis*, as it certainly has no claim to that of *Smithii*, or even to that of *spinulosa*.—*Edward Newman; Hanover Street, Peckham, August 24, 1843.*

ART. CLXVI.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF LONDON.

August 4, 1843.—J. E. Gray, Esq., F.R.S., &c., President, in the chair.

Read, "Observations on a variety of *Rosa sarmentacea*, *Woods* (found near Bridge-water by Mr. Clarke)," by Edwin Lees, Esq., F.L.S.

Mr. L. had known this variety for some years; and though there is considerable difference in the more or less deeply cut serratures of the foliage, he had always found the calyx to be fringed with stalked glands, as well as the flower-stalks. The tube is generally but sparingly so, or even naked. It is abundantly covered with glands in this variety. In some manuscript observations on the species, made in 1836, Mr. L.

had recorded,—“Calyx pinnate, rather densely covered with glandular bristles, which united to a purplish bloom on the segments, as well as on the tube, gives the rose a peculiar and very elegant appearance.” The petioles are always more or less glandular, without prickles, differing in this respect materially from *Rosa canina*, as well as in the particulars mentioned above. There is another point, too, which deserves attention. Mr. L. had often observed that the young foliage of this species has a faint but very perceptible cowslip-like scent, but he had never observed this in the leaves of *R. canina*. Mr. L. contended that *Rosa scabriuscula* was a good species, though it must be observed that the calyx-tube varies in being more or less covered with stalked glands, and that therefore Smith is wrong, in the ‘English Flora,’ in saying with regard to it, “quite smooth and naked.”

The character of this plant, as differing from *Rosa canina*, consists in the glandulosity of the pinnate calyx and of the peduncle, and in the petioles being slightly glandular, without prickles, or with very weak ones.

This rose, as far as Mr. Lees had observed, is not very abundantly distributed, being somewhat local, and plentiful only in particular spots.

Read, “Notice of the Mosses found in the neighbourhood of Bristol,” by Mr. G. H. K. Thwaites, M.E.S. The author enumerated 133 species as indigenous to that locality, several of which appear to be new to the British Flora. Amongst those most interesting to the British muscologist, may be mentioned the following.

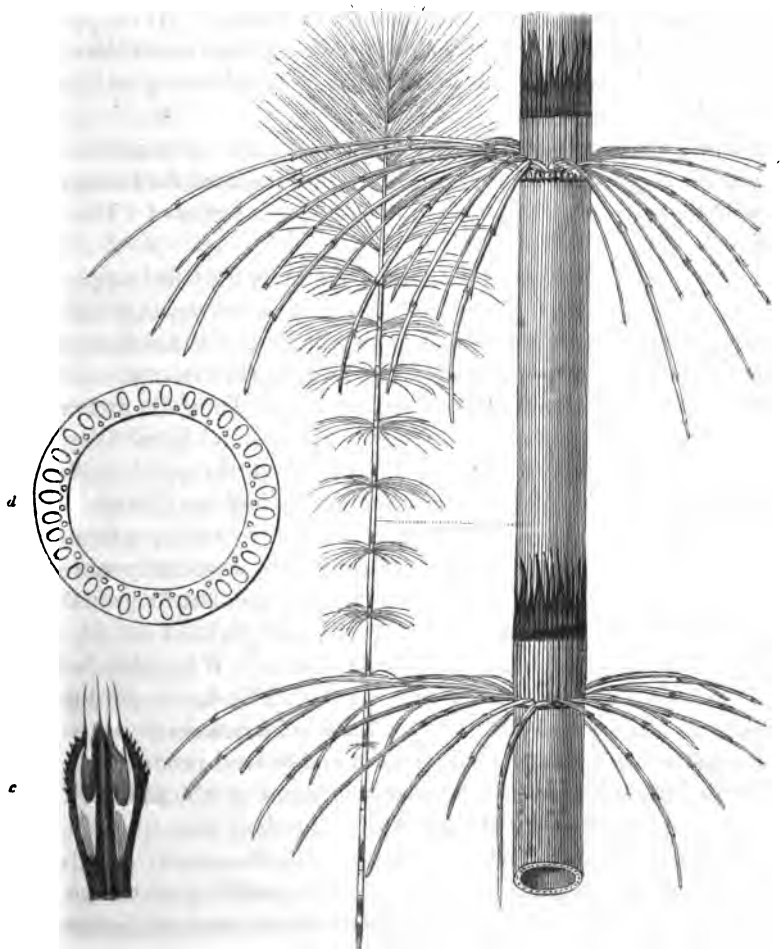
Didymodon Bruntoni	Funaria Muhlenbergii,	Hypnum crassinervium
rigidulus	[<i>β. patula</i>	strigosum
crispulus, <i>Wils. M.S.</i>	Bryum albicans	circinatum
brachydontus, <i>do.</i>	atropurpureum	cæspitosum
flexicaule	cernuum	Hookeria lucens
Trichostomum fasciculare	rostratum	Tetraphis pellucida
polyphyllum	Bartramia pomiformis	Encalypta streptocarpa
Barbula rigida	Leucodon sciurioides	Weissia Starkeana
convoluta	Hypnum riparium	Grimmia orbicularis
lævipala	murale	Gynostomum viridissimum
cylindrica, <i>Wils. M.S.</i>	piliferum	fasciculare
latifolia	salebrosus	Orthotrichum Rogeri

The President drew the attention of the Society to an abnormal form of *Ophrys apifera*, which had been sent to him by a lady, from Dorking. The two lower flowers of the spike had two distinct united columns, the upper normal one being rather the longest, and overlapping the other; the upper flowers had three columns united into a singular triangular mass; the upper petals of each of the flowers were rather reduced; the lips of the two lower flowers were small, and retained in part the usual character of the flower, but the lip of the upper flower was lilac, and exactly resembled the sepals in form and colour. The three sepals of the middle flower were united together nearly to the lip, as was the case also with two sepals of the terminal flower. The ovaries of all the flowers were of the normal structure.

The President stated that the Rev. Gerard E. Smith had figured an *Ophrys* with a similar triple column, but his specimen was quite destitute of a lip. He also observed that it might be worth while to examine if this excessive development of the column is always coexistent with the reduced development of the lip; and that this structure was quite distinct from the monstrosity of this plant described by Mr. Ilis, where each of the three petals was transformed into a polleniferous column.—*G. E. D.*

THE PHYTOLOGIST.

ART. CLXVII. — *A History of the British Equiseta.* By EDWARD
NEWMAN. (Continued from p. 700).



a, Diagram of a barren stem.

b, Portion of ditto, natural size.
d, Section of stem.

c, One of the sheaths of the branches.

GREAT EUISETUM.

EUISETUM TELMATEIA, Ehrhart.

Equisetum fluviatile, Smith, Hooker, Babington.

THIS beautiful species occurs in almost every county of England, but more abundantly in the neighbourhood of London than in other localities. Hampstead Heath and the neighbouring woods afford several well-known stations; it occurs also in Scotland and Wales, and Mr. Mackay observes that it is frequent in Ireland. It is apparently common on the continent of Europe, but does not reach the extreme north, not being mentioned by Linneus or Wahlenberg as inhabiting Lapland or Sweden.

Although so common a plant, much difference of opinion appears to prevail respecting the degree of moisture required for its nutriment, as will be seen by a reference to the following pages of 'The Phytologist';—588, 618, 621, 648 and 649.

The more I investigate the subject, the more do I feel strengthened in my original view of the case, confessing, however, that my opportunities of judging are confined to two or three localities, of which I select that at Norwood, recorded by Mr. Hott (Phytol. 295). The site is the brow of the hill, on the road towards Dulwich, below 'The Woodman' public-house at Norwood; the ground is partially waste, having apparently been excavated for brick-earth, and is sufficiently moist for little pools of water to collect in the hollows; partially, however, it is cultivated, there being now (August, 1843), a fine crop of wheat ready for the sickle. The *Equisetum* is abundantly mixed with the wheat in every direction as far as I could see, but its growth is not luxuriant, few of its stems attaining half the height of the wheat, and many falling very far short of even that stature. While this fact, however, proves that it will grow in soil sufficiently dry to produce good wheat, its diminished size affords little evidence on either side, for the constant disturbing of the roots in arable land produces an equally diminishing effect on *E. arvense*, the stems of which in the hedges, where the roots remain untouched, often attain a magnitude four times as great as those in the adjacent fields. On the uncultivated land the most luxuriant growth, measuring four feet and a half or five feet in height, was on the banks where all parts of the plant are comparatively free from being disturbed, and the soil loose, loamy and crumbling; but the approach to the little pools, as well as to exposed, dry, and trodden parts, was marked by a gradual decrease in the size of the plants, until, in the immediate vicinity of the water and trodden paths, the stems were perfect pigmies, scarcely four inches in height, thus inducing the conclusion that, in this locality, water is prejudicial, if not fatal, to the existence of the plant, and that closeness and com-

pactness of soil is also unfavorable; a more extensive record of observation is still to be desired.

It is hinted by Haller that the Roman people ate this plant, but the passage is so brief as to throw little light on the subject.*

Considerable difference of opinion appears to prevail on the subject of its being eaten by animals. Mr. Watson, in one of the passages above referred to, states that horses graze on it, (Phytol. 588). Mr. Gibson says that horses will not eat the plant at all, if they can get anything else, (Id. 618). On the occasion of my first visit to the Norwood station, there were three half-starved cadger's horses upon the waste ground where the *Equisetum* is growing; they devoured eagerly the coarse sour herbage growing about the pond, and almost every green blade they could find; indeed it seemed as though they seldom had an opportunity of making a meal, but they pertinaciously refused to touch the *Equisetum*.

The representations of this plant generally fail to give a correct idea of its figure, from the circumstance that the summit only of the stem is given; in other respects those in 'English Botany,'† Bolton's *Filices*‡ and Dietrich's 'Cryptogamia of Germany,'§ are tolerably correct.

It has already been shown that the nomenclature of this species is somewhat confused, but I trust that botanists generally will agree with me in restoring the earliest (binominal) name. There is little doubt of its being the *Equisetum majus* of Ray|| and of Gerarde,¶ but not the *E. arvense* var. *β.* of Hudson,** the *Equisetum Telmateia* of Ehrhart,†† the *Equisetum eburneum* of Roth,‡‡ who himself acknowledges it to be Ehrhart's *E. Telmateia*; and, finally, the *Equisetum fluviatile* of Smith, Hooker, and Babington, and of many continental botanists. It also appears clear that it was totally unknown to Linneus, and, consequently, neither named nor alluded to in any of his works. The names given by Ray, Gerarde, and other authors antecedent to Linneus, are dropped by universal consent: that the plant in question is a variety of *E. arvense* will not now be maintained; so that we unavoidably arrive at Ehrhart's name of *Telmateia*, published fifty-five years ago. Ehrhart's names were never, I believe, intended by their author as specific names, and, moreover, have been rejected as fanciful by many of our later botanists; but the latter objection scarcely

* Hoc fuerit *Equisetum* quod a plebe Romana in cibum recipitur. — Hall. Hist. iii. 1, No. 1675.

† Eng. Bot. 2022. ‡ Bolt. Fil. tab. 36 and 37. § Deut. Krypt. Gew. pl. 5.

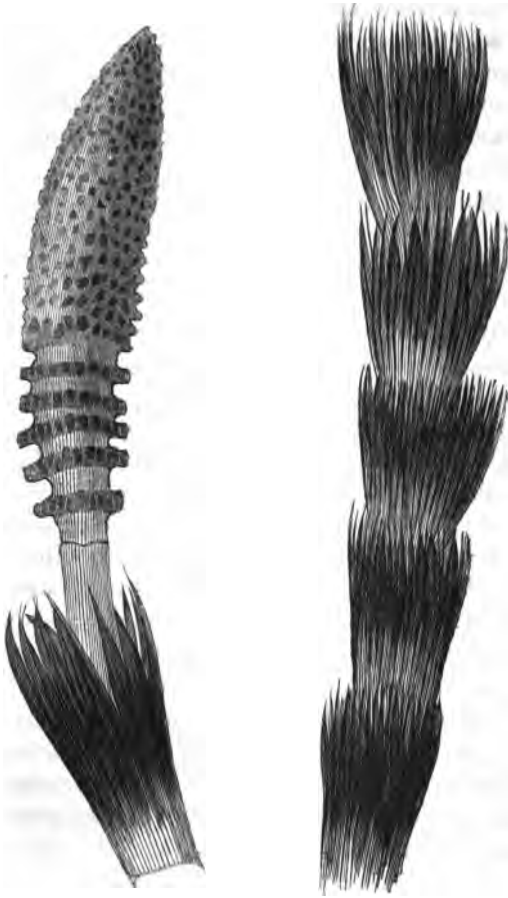
|| Ray, Syn. 130. ¶ Ger. Em. 1113.

** As suggested by Mr. Watson.

†† Ehrh. Beitrage, ii. 159.

‡‡ Roth, Catal. i. 129.

holds good in any instance, and certainly not in the present, for the Greek word *τελματειος*, signifying 'growing in mud,' is less fanciful, as applied to the present species, than the Latin word *fluviale*, or 'growing in rivers.' Moreover, the former objection is overruled in the present instance, by Ehrhart's name having been employed in the '*Flora Danica*,'* a work of acknowledged authority, and recently by Dietrich, as quoted above. I may also add that it is received as authority by Wahlenberg, than whom we have no more careful or pains-taking nomenclaturist.



Fertile stem of *Equisetum Telmateia*.

The roots and rhizoma present no peculiar characters; the latter is

* *Flora Danica*, 1469.

generally of an ebony blackness, and seems to spread with considerable rapidity, so that when once introduced a large patch is soon formed.

The stems are of three kinds, as in the preceding species; *first*, bearing fructification only; *secondly*, bearing both fructification and branches; and *thirdly*, bearing branches only. The exclusively fertile stems come up in March, shed their seed in April, and disappear in May: the figure on the opposite page represents a fertile stem of the natural size and proportions, but divided for more convenient representation: it is nine inches in length, and has six joints, several shorter and subterranean ones having served to unite it with the rhizoma. I have, in some instances, found the total number of joints to be fifteen; the stem, scarcely observable, owing to the great length of the sheaths, is pale brown, smooth and succulent. The sheaths are very large, loose and spreading towards the summit, distinctly striated, and terminate in from thirty to forty long, slightly flexuous, setiform teeth; the sheaths at the base are pale brown, but are much darker towards the summit. The catkin is about two inches and a half in length, and at length an inch and a half in circumference: the scales are very numerous, often reaching four hundred in number; they are arranged in whorls, of which the lower ones are always sufficiently obvious.

When the stem bears both fructification and branches, it is seldom in perfection until the month of August: such stems are far less numerous than in either of the preceding species, and bear but a small proportion to those which are exclusively fertile or exclusively barren: the catkin is much smaller than under ordinary circumstances: the stem also is smaller, although having longer joints; the sheaths are shorter, less spreading, and of a pale green colour; the branches are placed on the second to the ninth or tenth joint, counting from the catkin; in all the specimens I have seen they are ascending.

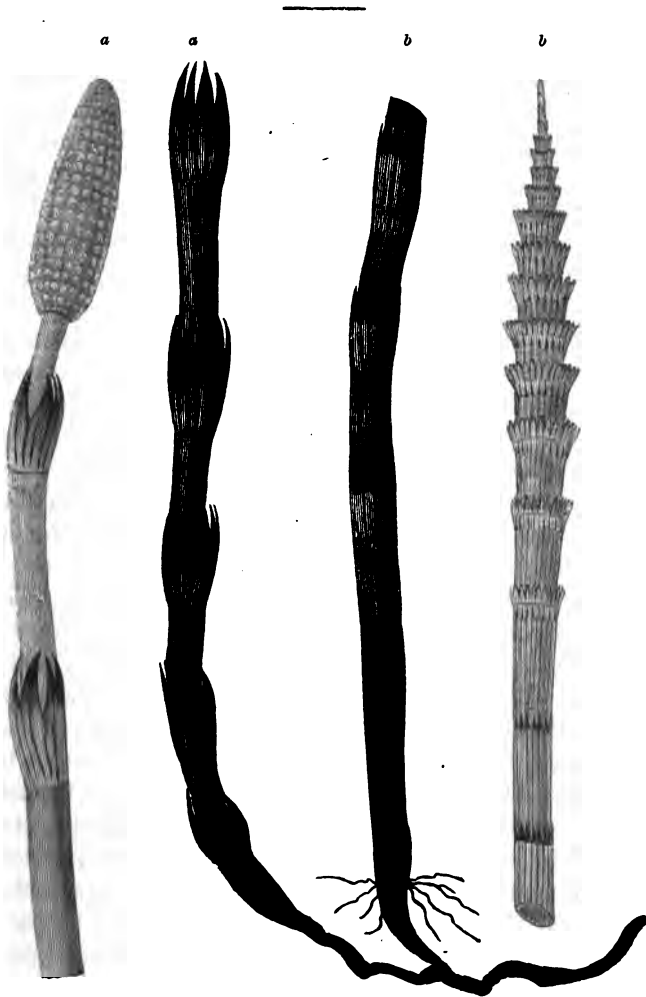
The barren stem is much larger than in any other species of *Equisetum* with which I am acquainted: it occasionally attains a height of seven feet, and a circumference of more than two inches; its outline and proportions are shown, on a very reduced scale, at page 721, fig. *a*, and one of the internodes, with its accompanying sheaths, is represented of the natural size at fig. *b*.

The following is the description of a living stem now before me, of the average size. The entire length above ground, and including the ascending branches, is fifty-four inches; the circumference, at twelve inches from the ground, is an inch and a half, but decreases upwards until it becomes extremely slender, terminating almost in a point.

The surface of the stem is perfectly without ridges or furrows; the number of joints is forty: the colour of the internodes is white, with the slightest tinge of green, but those on the lower part of the stem often change to intense black: the black makes its first appearance in spots or blotches, giving the stem a singularly variegated appearance, but it rapidly spreads, and finally entirely occupies all the lower internodes. The sheaths, at the stouter part of the stem, are fully half an inch in length, and the teeth are as much more: the former have about thirty-two deep and distinct striæ, which are furnished with rows of siliceous particles at their edges: the spaces between the striæ have broad shallow furrows. The teeth are slender, setiform, closely appressed to the stem, frequently adhering at the summit in twos and threes, and furnished with dilated, semi-membranous, somewhat ragged edges at the base. The sheaths are pale green, with a distinct blackish ring at the summit; the teeth are black, with the membranous edges brown, and, in the lower sheaths, often clothed with a brown, byssoid pubescence. Each of the joints, with the exception of five forming a slender apiculus at the summit, and six nearest the ground, is furnished at the base of its accompanying sheath with a whorl of slender branches: those of the lower sheaths are short and recurved, while those near the summit are nine inches in length, and nearly erect: the varied direction of the branches is shown at fig. *a*. The number of branches in a whorl is very various: the respective numbers, counting from the summit, are these: — five, six, seven, eight, nine, ten, thirteen, fourteen, fifteen, sixteen, eighteen, twenty, twenty-five, twenty-nine, thirty-three — repeated eleven times, thirty, twenty-eight, and sixteen, making a total of six hundred and seventy-eight. The colour of the branches is a delicate green, so beautiful as to attract the eye at a considerable distance. Each of these branches is composed of about eight or nine longish joints, and each joint terminates in a loose sheath: the branches have either eight or ten ribs, united in pairs, and rough with siliceous particles: the sheaths terminate in four or five teeth, each furnished at the extremity with a slender black bristle: a pair of ribs ascends into each of the teeth, and each rib is furnished, near its termination, with a series of rather long siliceous points, which give it a pectinated appearance. Such may be received as the description of a stem of normal size and characters, and the variations are very unimportant, chiefly consisting in size and number of branches, but rarely interfering with the figure of the frond, unless caused by circumstances, either of wet or drought, both apparently uncongenial to its perfect development. One character, how-

ever, must not be passed over in silence, and that is, the liability of the branches to emit two, three, four, or even five, secondary branches, from the summit of the second joint: these branches are usually slender, and when present, they give the plant a beautifully compound and feathery appearance.

The stem presents a transverse section very different from that of any other species (fig. *d*).



THE CORN-FIELD EUISETUM.

EQUISETUM ARVENSE, *Linnæus*.

THIS is, beyond all comparison, the most abundant of our British *Equisetums*; indeed it is a serious nuisance to the farmer and gardener, whose utmost efforts to eradicate it frequently prove ineffectual. It appears to have little choice of locality, being equally common in dry and moist situations.

The name of this species is now universally received, and I am not aware that any doubt exists as to its being the *Equisetum arvense* of Linneus, although there is some confusion in the nomenclature of the specimens in the Linnean herbarium, as already shown. The barren stem of this plant is without doubt the '*Equisetum arvense longioribus setis*' of Ray's '*Synopsis*,'* and it also seems to me that the '*Equisetum pratense longioribus setis*,' of the same work, although added by the careful Dillenius, is the same plant. Still this latter has sometimes been considered distinct as a species, and identical with the continental *E. pratense*, which is so carefully described by Roth,† and previously, although not so fully, by Ehrhart.‡ Roth, however, admits that he had never seen the catkin, and the circumstance of this being found on a branch-bearing stem forms the chief diagnostic of the species. Willdenow, who describes the species,§ confesses he has not seen it at all, and almost every other author omits it altogether: thus it appears not improbable that some form of *E. arvense* was the plant originally intended. The '*Equisetum nudum minus basiliense*' of Ray can be none other than the fertile stem of *E. arvense*, as I think is sufficiently proved by the following passage. — "This was first shew'd to Mr. Lawson at Great Salkeld, but grows in so great plenty there and everywhere on the banks of the River Eden, that he could not but wonder that this was the first time of its being observ'd in England. 'Tis an early and quickly fading Vernal Plant, which might probably be the Occasion of its not being hitherto taken notice of by those curious Gentlemen, who commonly began their Circuits too late in the Year for such a Discovery."|| The '*Equisetum nudum minus variegatum basiliense*' of Bauhin,¶ is quoted by Smith as synonymous with his *E. variegatum*, and by Linneus as synonymous with his *E. hyemale*, which plants widely differ from the early disappearing plant described by Mr. Robinson in the passage above cited.

* Syn. 130.

† Roth, Flor. Germ. iii. 6.

‡ Ehrhart, Beitrage, Band iii. p. 77, n. 36. § Species Plantarum, v. 6.

|| Th. Robinson Ess. towards a Natural History of Westm. and Cumberl., p. 92, as quoted in Ray's Synopsis, p. 130.

¶ Pin. 16, Prodr. 24, Theatr. 250. no f. teste Smith.

The figures of this very common plant are so different, that it seems impossible to reconcile the discrepancy otherwise than by a reference to the protean character of the original: that in Curtis's '*Flora Londinensis*'* may perhaps be cited as the best.

The corn-field *Equisetum* is supposed to be very injurious to cattle; it is, however, most probable that they will not touch it, unless compelled by extreme hunger.

This seems to be the only British species in which the fertile and barren stems are perfectly and constantly distinct, and of a different structure, the former having generally completely vanished long before the latter have acquired their full development. In those species which are constantly simple, *i. e.*, without whorls of branches, it appears the character of each stem to produce a terminal catkin, consequently, there is no observable difference in the structure of the fertile and barren stems: in the following species, *E. palustre* and *E. fluviatile*, the same general character obtains, the grand distinction being in the almost constant presence of whorls of branches: in *E. sylvaticum* a marked difference is observable, for not only are a portion of the stems exclusively fertile and rapidly evanescent, but the *mixed* stems — those which bear both catkin and branches — are decidedly different to the exclusively barren ones, being more succulent, and having larger and looser sheaths: in *E. umbrosum* the discrepancy between fertile and barren stems is so great, that the combination of the two, although common, has not been noticed by our British authors: in *E. Telmateia* these mixed stems are comparatively rare exceptions, and have almost been regarded as unnatural or monstrous, so that we arrive, by a nearly imperceptible transition, at *E. arvense*, in which the two kinds of stem are perfectly and constantly distinct.

The figure at p. 727 represents two stems of the corn-field *Equisetum*, of the natural size, *a a* being the fertile, *b b* the barren stem: they are drawn from living specimens, and show the immature barren stem synchronous with the perfectly ripe fertile one, both stems ascending from the same rhizoma; and I may here remark that the appearance of the barren stem at this early period, is very similar in *E. sylvaticum*, *umbrosum*, *Telmateia* and *arvense*, so that the figure referred to gives a good idea of them all. The fertile stem selected for the figure, as one of average size and proportions, may be thus described: it is about nine inches in length, and consists of eight joints, which decrease in length from the base

* Curtis, *Flor. Lond. fam*

is extremely succulent, of a pale brown colour, smooth, and entirely without furrows: the sheaths are loose, somewhat gibbous, and distinctly ribbed: they are of a pale yellowish brown colour at the base, and have about ten dark brown long-pointed teeth: these occasionally adhere at the points, in twos and threes.

The catkin is an inch and a quarter in length, rather slender, blunt and rounded at the apex, and stands on a distinct foot-stalk, usually about equal to half its own length; it is of a pale delicate brown colour, occasionally tinged with rosy red; the scales are very variable in number, being sometimes scarcely a hundred, at others reaching two hundred and fifty. The catkin is mature in May, and sheds abundance of seed, of a beautiful green colour.

The following is a description of a barren stem. Length twenty-eight inches; very slender at the summit, and increasing to the size of a goose-quill at the base: the colour is glaucous green towards the summit, and pale green towards the base: the stem has from ten to sixteen distinct but not very deep furrows, and the same number of equally distinct ribs, which are furnished with very minute siliceous points; the number of joints is twenty-one: the length of the internodes varies from half an inch at the summit to two inches at the base: the sheaths, including the teeth, are scarcely more than a quarter of an inch in length; they are but little larger than the stem, not, however, clasping it tightly, as in *E. fluviatile*; they are furrowed in the same manner as the internodes, but the ribs are double: the teeth are ten to sixteen in number, wedge-shaped, acute, and dark brown or black; they are commonly, but not constantly, furnished with a narrow, brown, marginal membrane: I have never seen the teeth of this species with the distinct, white, semi-hyaline membrane, which appears constant in *E. palustre*, *E. umbrosum*, and some other species. There is a whorl of branches on each of the thirteen upper joints, the eight lower ones being branchless: the number of branches in a whorl varies from four to thirteen. The branches are eight or ten inches in length, rather stout, spreading, slightly ascending, four-ribbed, and composed of ten or twelve joints, of which the apical ones are shortest; the basal joint is shorter than the three which follow it, but is much longer than in *E. palustre*, and still more so than in *E. umbrosum*: the short sheath at the base of each branch usually terminates in obtuse brown segments: the other sheaths are loose, and terminate in four long acute teeth, which are generally concolorous throughout; and a single rib invariably ascends undivided to the extreme point of each tooth.

The variations of the barren stem of this plant appear almost infinite; perhaps its normal character may be defined as nearly erect, with spreading and slightly drooping branches: the following is an enumeration of the more strongly marked varieties.

A. — Stem erect; branches simple, very rigid, erect and densely crowded.

B. — Stem erect; branches simple, less rigid, spreading, slightly ascending.

C. — Stem erect; branches simple, gracefully drooping.

D. — Stem erect; branches compound in the same manner as in *E. sylvaticum*, and gracefully pendulous.

E. — Stem almost prostrate, with semi-erect, very long, compound, feeble branches.

F. — Stem prostrate, with scattered, simple, irregular, semiprostrate branches.

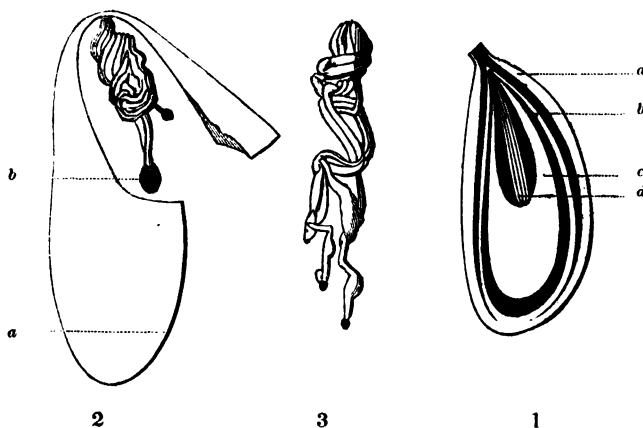
EDWARD NEWMAN.

ART. CLXVIII.—*Researches in Embryogeny.* By W. WILSON, Esq.

(Continued from page 659).

HAVING had opportunities, during a recent visit to North Wales, for extending my observations on the embryo of *Juniperus communis*, I now resume this subject, after a very careful examination, as one of considerable importance in the present enquiry. On reference to my former observations (*Phytol.* 625, fig. 3, 4), it will be seen that the naked ovule consists at first of a wide-mouthed sac, at the bottom of which is seated a roundish nucleus, somewhat flattened at the top. The nucleus, at this early stage, is composed of a simple mass of cellular tissue, without any tunic. The upper part of the ovules (of which there are three in each flower) projects beyond the floral integument, and there is thus offered every facility for direct communication between the pollen and the nucule; so much so, that the grains of pollen might probably gain immediate access to the interior without the intervention of pollen-tubes. Indeed, if the views of Schleiden were well founded, and if the upper part of the ovule be denied the function of a stigma, we might expect that this plant would clearly and readily exhibit proof of such access. If we fail to trace the pollen-tubes into the nucleus, where all the parts are so much exposed to view, the integuments so few, and the whole structure so much simplified,—in vain shall we hope to verify the statements of those who maintain this doctrine; and for this reason I strongly recommend

those who are interested in the enquiry, to lend their aid in the investigation of this plant at the proper season. From the period when the flowers expanded to the middle of August, I had no means of studying the subject; and it will be seen by what follows, that the ovule, during this interval, has undergone a most remarkable change. To illustrate my remarks, I have judged it best to present the annexed diagram (fig. 1), representing a longitudinal section of the ovule in the third month after the expansion of the flower.



Juniperus communis.

Fig. 1.—Longitudinal section of ovule three months after the expansion of the flower. *a*, primine. *b*, secundine. *c*, tercine or albumen, having a cavity (embryo-sac?) in the upper part. *d*, a bundle of loose cellular tissue, suspended from the top of the cavity, and bearing at its extremity the rudiment of the embryo. The embryo, when mature, extends throughout the whole length of the albumen.

Fig. 2.—Longitudinal section of the tercine of the ovulum, dissected, to show the rudimentary embryo, *b*, suspended from a bundle of vessels.

Fig. 3.—The bundle of vessels in a younger stage, partly separated, to show the structure.

The outer portion of the ovule (*a*) has become much enlarged in all parts except at the summit, where there still exists a minute orifice, and the substance, once soft and cellular, is now altered into a hard bony shell, lined on the inside with a thin membrane, which may be detached when the berry is fully ripe. The next integument (*b*) is the secundine, white, and somewhat leathery in texture, attached by its base to the bottom of *a*. It corresponds with the nucleus figured at p. 625: all the contained parts have been subsequently developed.

The tercine (*c*) is suspended from the top of *b*, and constitutes the albumen in the mature seed. It is already white and amylaceous internally, and is surrounded by a yellowish skin. The upper part of the tercine or albumen contains a cavity (the embryo-sac) which gradually narrows to the top, where there is no visible orifice. Within this cavity is suspended, from the apex of the tercine, a bundle of fibres (*d*), composed of large, elongated, crooked cellules, enlarging as they descend, each fibre slightly cohering to those which are in contact with it. Three or four of the terminal cells of the bundle, are tipped each with a roundish mass of opaque granular matter, one of which at length grows larger than the rest; and this it is, which, after much pains devoted to the enquiry, I am led to consider as the rudimentary embryo.* It is shown in the drawing at fig. 2, where *a* represents a longitudinal section of the albumen, the upper part of which is lacerated by art, in order to display the contained parts, namely, the rudimentary embryo (*b*) suspended by the lax and tortuous bundle of vessels already described, and which in an earlier stage is seen at fig. 3.

In a few instances the immature or green berries of the present season had the embryo completely formed, extending from one end of the albumen to the other, as in the fully ripe berries of the former year, still remaining on the same plants. In these the umbilical cord (*d*) is pushed up and crumpled into a narrow space at the top, and by its presence at that stage has materially assisted me in ascertaining that the body *c* is not itself the embryo, but the nidus in which the embryo is elaborated, *long after the usual period of fecundation*.

From the foregoing account it seems very improbable that so many newly developed parts should derive their existence from a pollentube, while the embryo itself is still in a rudimentary state; and the idea of the formation of a *vésicule embryonnaire* (*utricule primordiale*, Mirbel), such as Brongniart describes it, appears to be utterly inadmissible in the present case. Questions of this intricate nature are however to be disposed of only after rigorous investigation; and it is hoped that some of the readers of 'The Phytologist' will be able to supply the links which are wanting to complete the present enquiry.

As an appendix to my remarks on *Statice Armeria* (Phytol. 657), I wish to state that during my absence from home two other species,—

* It may possibly be the *utricule primordiale* of Mirbel and Spach, "whose special office it is to form the embryo, (dont l'office spécial est de commencer l'embryon.)"

S. Limonium and *S. spathulata*,—were carefully examined and compared with the one already described. In *S. Limonium*, the cellular body within the ovarium proceeding from the styles, is attached to the apex of the ovule, but so slightly, that I have not succeeded in dissecting away the surrounding parts without breaking the connexion. The secundine has no conical cavity at its apex, like that seen in *S. Armeria*, and there is no appearance of penetration: on the contrary, the suspensor merely covers the apex of the ovule, like a pentagonal cap. A similar structure is observable in *S. spathulata*, only that the suspensor is crooked, and obliquely attached to the ovule. In both these cases, the connexion exists previously to the expansion of the flower-bud.

Having paid some attention to *Tropæolum majus* since the essay on that plant was republished (*Phytol.* 659), candour obliges me to confess that I have not been able to verify some of the statements contained in Dr. Giraud's paper; and I am compelled either to question the aptitude of his observations, or to admit my own inability to follow him in the path which he has trod. I do not deny that his conclusions are just, but they seem to me to be founded upon data less cogent than actual demonstration. I am not even satisfied that he is correct in saying that the ovule is *anatropous*: if it be so, the change must take place at a much earlier period than the one which he indicates. But admitting, for the present, that his remarks are accurate, I would observe that the ovule of *Tropæolum* is by no means, as Schleiden himself confesses, an easy subject for investigation; and that whoever succeeds with that, may calculate on still greater success in the examination of those which I have endeavoured to illustrate: and to such an one I would very willingly resign the task, as much more competent than myself to explore these secrets of Nature. It is remarkable enough that *Tropæolum majus* has been selected by Schleiden as one of the examples in support of his doctrine, and he has given figures which exhibit the pollen-tube in actual communication with the ovule, introduced within the micropyle. It is to be feared that Schleiden is not the only person chargeable with having *imagined* rather than actually *seen* some things connected with this intricate subject; and the "necessity of adopting a good method of oft-repeated, scrupulous and patient observation" cannot be too much insisted upon. In no case can the microscope be safely trusted, unless the parts can be separated and displayed by careful manipulation. Much of the knowledge that is acquired while engaged in dissecting objects under the microscope, is otherwise unattainable; and many

optical illusions are dispelled by calling in the organ of touch to aid and correct the eye in these subtle disquisitions.

W. WILSON.

Orford Mount, Warrington,
August 31, 1843.

ART. CLXIX. — *Rarer Plants observed near Weymouth.*

By G. S. GIBSON, Esq.

THE following is a list of some of the rarer plants observed in the vicinity of Weymouth, during a fortnight's sojourn in that town in the summer of 1843.

- | | |
|--|---|
| <i>Adonis autumnalis.</i> Corn-fields at Portland. | <i>Pisum maritimum.</i> Chesil bank, opposite Wyke. |
| <i>Papaver hybridum.</i> Near Wyke. | <i>Rosa spinosissima.</i> Portland. |
| —— <i>Argemone.</i> Portland. | <i>Petroselinum segetum.</i> Hedges, not uncommon. |
| <i>Glaucium luteum.</i> Stony beach. | <i>Sison Amomum.</i> Hedges, frequent. |
| <i>Fumaria capreolata.</i> Lane at Chesil, Portland. | <i>Bupleurum tenuissimum.</i> Field by Backwater on the west side, beyond the gas-works; also near the sluice, Lodmoor. |
| <i>Cochlearia danica.</i> Chesil bank, by the rd. | <i>Enanthe pimpinelloides.</i> Moist meadows &c. frequent. |
| <i>Cakile maritima.</i> Sandy shore. | <i>Silaua pratensis.</i> Meadows. |
| <i>Arabis hirsuta.</i> Rocks at Portland. | <i>Crithmum maritimum.</i> Chesil bank, west of the bridge. |
| <i>Silene anglica.</i> Very sparingly near the sluice, Lodmoor. | <i>Pastinaca sativa.</i> Fields and road-sides. |
| <i>Linum angustifolium.</i> Near the Ferry-bridge; Backwater banks near gas-works, &c. | <i>Torilis infesta.</i> Road-sides. |
| <i>Geranium lucidum</i> & <i>columbinum.</i> Rocks at Portland. | <i>Smyrniolum Olusatrum.</i> Cliffs nr. the pier. |
| <i>Medicago maculata.</i> Cliffs &c. in several places. | <i>Eryngium maritimum.</i> Chesil bank and by Ferry-bridge. |
| —— <i>denticulata.</i> Sparingly near the Ferry-bridge. | <i>Rubia peregrina.</i> Rocks at Portland. |
| <i>Trifolium ornithopodioides.</i> Chesil bank close to Portland, and at Portland. | <i>Asperula Cynanchica, Fedia Auricula</i> and <i>Prenanthes muralis.</i> Portland. |
| —— <i>maritimum.</i> By the Backwater and the cliffs. | <i>Carduus nutans</i> (white flowers). Portland, near the church. |
| —— <i>scabrum.</i> Sandy shore &c. fr. | —— <i>Marianus.</i> Portland. |
| <i>Vicia gracilis.</i> Cornfields at Portland. | <i>Cichorium Intybus.</i> Corn-fields and road-sides. |
| —— <i>angustifolia.</i> Cliffs towards Sands-foot castle. | <i>Conyza squarrosa</i> and <i>Solidago Virgaurea.</i> Portland. |
| —— <i>lutea.</i> Field on the cliff near Sands-foot castle; stony beach at Lodmoor | <i>Senecio sylvaticus.</i> Cliffs by Backwater. |
| <i>Lathyrus Aphaca.</i> Fields &c. at Portland, abundant; also near Wyke. | <i>Aster Tripolium</i> & <i>Pyrethrum maritimum.</i> Salt-marshes. |

- Campanula glomerata*. Maumbury, near Dorchester.
 ——— *hybrida*. Portland, in corn-fields.
Gentiana Amarella. Maumbury, near Dorchester.
Erythraea pulchella. Portland cliffs and by Backwater.
Convolvulus Soldanella. Chesil bank near the road.
Borago officinalis. Portland.
Linaria spuria. At Lodmoor, and road to Radipole.
 ——— *Elatine*. Fields, rare.
Galeopsis Ladanum. Corn-flds. Portland
Orobancha elatior. Maumbury near Dorchester.
 ——— *minor*. Sparingly at Portland.
Plantago maritima and *Glaux maritima*. Marshes near the Backwater.
Salsola Kali. Sands near Ferry-bridge.
Chenopodium maritimum. Salt-marshes.
 ——— *fruticosum*. Chesil bank, west of the bridge.
 ——— *ficifolium*. Near the Backwater, very rare.
 ——— *murale*. Waste ground.
Atriplex portulacoides. Marshes by Backwater.
 ——— *littoralis*. Chesil bank.
Beta maritima. Salt-marshes and shore.
Salicornia herbacea. Marshes by Backwater.
Rumex pulcher. Road-sides, frequent.
Thesium linophyllum. Cliff by Sandsfoot sands, sparingly.
Euphorbia Paralias. Chesil bank, near the road.
 ——— *Portlandica*. Portland and Chesil bank.
Euphorbia amygdaloides. Portland.
Mercurialis annua. Waste ground.
Triglochin maritimum. Marshes, Radipole &c.
Iris foetidissima. Hedges, frequent.
Tamus communis. Hedges.
Ruscus aculeatus. Roadside nr. Broadway.
Ruppia maritima and *Zannichellia palustris*. Salt-marsh ditches, near the sluice.
Zostera marina. In the sea, near the jetty.
Juncus acutus. Shore of the backwater.
Scirpus maritimus. Near Radipole, &c.
 ——— *Savii*. At Portland.
Carex arenaria. Sands near Ferry-bridge.
Alopecurus bulbosus. Salt-marshes.
Ammophila arundinacea and *Phleum arenarium*. Sandy shore.
Gastridium lendigerum. Backwater cliffs; also near the preventive station, northward.
Poa distans, *maritima* and *procumbens*. Salt-marshes by Backwater.
Festuca bromoides. Backwater cliffs.
 ——— *uniglumis*. Sandy field near Ferry-bridge, and by the road on Chesil bank.
Avena fatua. Fields and cliffs frequent.
Hordeum pratense. Fields &c. frequent.
 ——— *maritimum*. Lane near the gas-works.
Triticum loliaceum. Road near Sandsfoot castle, &c.
 ——— *juncum*. Sandy coast by Ferry-bridge.
Brachypodium pinnatum. Cliffs &c. plentiful.
Rottbollia incurvata. Salt-marshes abundant.

Several plants peculiar to the neighbourhood of the sea, but not uncommon near it, such as *Silene maritima*, *Arenaria marina* and *peploides*, *Statice Armeria*, &c., I have purposely omitted.

The following, which are stated in the 'Botanist's Guide' to grow near Weymouth, I have searched for unsuccessfully; namely, *Vicia bithynica*, *Lathyrus Nissolia*, *Polycarpon tetraphyllum*, *Amaranthus*

Blitum, Cladium Mariscus, Calamagrostis Epigejos and lanceolata, and Agrostis setacea; and am ready to fear that most of them have become extinct. Salicornia radicans, too, does not appear to grow at Weymouth, and probably S. herbacea, which is very fine and abundant, has been mistaken for it.

I explored all the localities given for *Vicia lævigata*, without success: these localities are, in the 'Botanist's Guide,' Portland Island, Chesil bank, and Lodmoor near Weymouth; in the 'English Flora,' a field half way between Weymouth and Portland ferry, near the sea. At Portland island and the Chesil bank I could discover nothing at all similar to it, though the latter was examined for several miles; at Lodmoor the stony beach produces *Vicia lutea* abundantly, as also does a green declivity of the cliff, about half way between Weymouth and the ferry, probably the field referred to in the 'English Flora;' but in neither place could I see any trace of *V. lævigata*. Perhaps some of your correspondents may be able to state whether it has recently been found near Weymouth, or whether there is now any authentic locality for this very rare plant.

G. S. GIBSON.

Saffron Walden, August, 1843.

ART. CLXX. — *Notice of 'A Visit to the Australian Colonies.* By JAMES BACKHOUSE.' London: Hamilton, Adams & Co. 1843.

(Concluded from p. 608).

ON the route from Appin to Illawarra, over a sandstone country, elevated about 2000 feet above the level of the sea, four species of *Grevillea* were observed, one of them having brilliant scarlet blossoms, and a gay *Mirbellia*, with bluish purple flowers, besides several species of *Dillwynia*, *Pultenæa* and *Boronia*, and the gigantic lily, *Dorothy excelsa*. In descending, the sides of a rough track, called the Bulli Road, were ornamented with a gay *Prostanthera*, *Pimelia hypericifolia*, *Pittospermum undulatum* and another fragrant species of this genus, and a handsome white *Clematis*.

In a forest in the vicinity of Wollongong —

"Some large species of fig are met with, as well as large gum-trees, and species of *Tristania*; also *Metrosideros capitata*, called here turpentine-tree, which attains a large stature, and *Sterculia acerifolia*, which has large clusters of small flame-coloured flowers, that produce a striking appearance in spring. The cabbage palm, *Corypha australis*, abounds by the sides of water-courses. Great numbers of this palm, which has elegant, fan-like foliage, and hard, purple seeds, the size of a marble, are

destroyed for the sake of their trunks and leaves. The trunks, which are sometimes eighty feet high, and are rough with scars where the leaves have fallen off, are occasionally split, and converted into posts for fencing; they are also used for slabs in temporary buildings. The inside being rather sweet, and not hard, though fibrous, is eaten by pigs. The mature leaves are used for thatching, those just beginning to expand, for making hats, and the heart, or cabbage, of the young, unexpanded leaves, is eaten either raw or cooked. A heart-leaved species of pepper climbs like ivy among the lofty trees, and hangs in festoons from their branches, almost to the ground. Ferns and orchidaceous plants abound on the trunks and limbs of many of the trees. One of the latter, *Sarcochilus falcatus*, with blossoms nearly as white as snowdrops, is now in flower. In these forests, there are many epiphytes of the *Orchis* tribe, the habits of which are worthy of notice, both as exhibited here, and in other parts of the Colony. *Dendrobium speciosum* generally grows in fissures of the sandstone rocks, among the loose fragments, mixed with vegetable matter, but I once met with it, of extraordinary size, in the cleft of an old fig-tree, among vegetable remains. *D. linguiforme* generally creeps on grit rocks, rarely on the living bark of figs and *Casuarinæ*. The other species of *Dendrobium*, with the genera *Sarcochilus* and *Gunnia*, grow on the bark of living trees. Once I saw *Dendrobium calamifolium* on a rock; but both this and the other species growing on living trees, begin to languish when the trees to which they are attached, die, probably from the portion of their roots adhering to the bark becoming dried; a circumstance that is prevented, when they are cultivated in England, by the moist atmosphere of an orchideous-house. The Australian species of *Cymbidium* universally strike their roots into the decaying portions of trees, in which they may sometimes be traced many feet. Once only, I met with one growing from among the paper-like laminæ of the bark of *Melaleuca viridiflora*, and it looked sickly."—p. 426.

On the way to Shoal Haven, *Seaforthia elegans* is plentiful in shady places, and many parts of the forest are gay with a species of *Goodia*, which forms a large shrub, covered with racemes of yellow, pea-like blossoms, tinged with orange. A species of indigo, with rosy pink flowers, and tree-nettles, one of which was sixteen feet in circumference, attracted our traveller's attention. *Asplenium Nidus* and *Acrostichum alciorne* were growing on the limbs of enormous fig-trees, and even some of the lofty cabbage-palms were encircled by the latter, while ferns of less magnitude—*Polypodium tenellum* and *quercifolium*, and *Nipholobolus rupestris*—were climbing the trunks of trees like ivy, and others—as *Adiantum formosum* and *assimile*, *Doodia aspera* and *Lomaria Patersonii*—were scattered about the surface of the ground, intermingled with tree-ferns of the genus *Alsophila*, besides *Calanthe veratrifolia*, and several other terrestrial *Orchideæ*. In a subsequent walk, the rock-lily, *Dendrobium speciosum*, was in blossom on a rock, with a spike of white flowers, fading into yellow. Other specimens of the tree-nettle were measured, and found to be eighteen, twenty, and twenty-one feet in circumference. These are

probably the largest and most severe nettles in the world ; our author found the sting as painful as that of a wasp : the leaves are heart-shaped, and some of them six inches across : the stinging hairs are not the most numerous, and are readily distinguishable when held to the light by the vesicle of poison at their base. On the ascent of the Cambewarra mountains, *Dendrobium ruscifolium* was observed in flower on the trees, and two smaller epiphytes on mossy logs nearer the top of the mountain.

In the neighbourhood of Goulburn are certain plants allied to those of England—such, for instance, as some species of *Potamogeton* and *Villarsia*—while others—as *Typha latifolia* and *Myriophyllum verticillatum*—are thought to be actually identical. At Arthurslee, white clover, trefoil, a spinous-seeded medic, rib-grass, rye-grass, shepherd's purse, *Erodium cicutarium* and *moschatum*, and some other English plants, had established themselves, as is the case in many other parts of the colony ; they spread and thrive often more vigorously than in their native soil. This fact leads us to the often mooted question of interchanging the productions of distant climes. Wherefore should not we gladly receive the beautiful products of other regions, and adopt them as our own ? More than a hundred of our British plants are perfectly naturalized in Australia, and we may fairly anticipate the day when Australia shall contribute her quota towards the Flora of Great Britain. The mode of introduction matters but little : at first it may be intentionally introduced into gardens with care and pains-taking, but in a few generations the plant may escape its destined boundary, the seeds may be conveyed by birds or scattered by the wind, and the produce may become so established that our endeavours to eradicate it would prove wholly fruitless.

After a voyage to Hobart Town, our traveller visited Port Adelaide, on the 30th of November, 1837 ; and we have the following sketches of its botanical productions.

“We walked about seven miles to Port Adelaide. The way was over two level plains, separated by a slight, sandy rise, covered with wood. The soil of the plains was a reddish loam, having a slight admixture of sand and calcareous matter. They were covered with tufted grass and small herbs. Among the latter was a species of *Eryngium*, a foot high, the leaves of which are eaten with avidity by cattle, and some small yellow-flowered everlastings. Near Port Adelaide, the land becomes saline, and produces crimson *Mesembryanthemums*, of three species, along with numerous maritime shrubs. On a sand-bank separating the plain from the salt marsh, which borders the creek or inlet that forms the harbour, there are trees of a species of *Callitris*, resembling cypress. These are here called pines, and have trunks about 40 feet high, which are used for piles. *Casuarina quadrivalvis* and *Banksia australis* likewise grow

here. On this bank there was an *Orobanche*, very like *Orobanche minor* of England. * * The salt marsh was covered with two species of *Salicornia*, one of which was shrubby; interspersed among these were two species of *Frankenia*, one of which was bushy, about a foot high, and besprinkled with rosy, pink blossoms, the size of a silver penny. The creek was margined with mangrove, *Avicennia tomentosa*."—p. 510.

"A white-flowered *Morna*, a downy, drooping-flowered *Pimelea*, a broad and a narrow-leaved *Xanthorrhœa*, and several other striking plants, were growing in the forest on the red sandstone. On the argillaceous hills, there was a shrub belonging to the *Gentianæ*, with leaves resembling those of the greater periwinkle, and a *Pomaderris*, with pale leaves next to the heads of flowers. *Todea africana*, *Grammitis rutæfolius*, and some other ferns, were also here. Upon the limestone hills were a broad-leaved *Goodenia*, an *Orobanche*, and *Lobelia gibbosa*: this last is a singular annual, flowering after its leaves have faded. A considerable number of curious insects were feeding in a thicket on the blossoms of a *Leptospermum*."—p. 520.

Near Albany, in King George's Sound, several remarkable plants attracted our traveller's attention.

"Among these may be enumerated *Kingia australis*, which resembles a grass-tree, of about eight feet high, but differs in its flower-stems and blossoms; *Sollya heterophylla*, which produces elegant blue flowers, on a privet-like, half-climbing bush; *Anthocercis viscida*, which forms a large, bushy plant, with striking, white flowers, and grows close upon the beach; and *Cephalodea follicularis*, which has small, whitish flowers, on a stalk a foot and a half high, and which produces pitcher-like vessels among its leaves, at the base of the flower-stem: the pitchers have lids, are an inch deep, contain water, and often drowned insects, and are of very singular structure." p. 527.

On the route to Freemantle, on New Year's Day, 1838, the *Nuytsia floribunda* is described as attaining a height of forty feet, and a circumference of six feet; its top was crowned with a mass of golden, orange or yellow flowers: other beautiful flowers were in blossom, a yellow *Calothrix*, a yellow and red and a sky-blue *Leschenaultia*, a crimson linear-leaved *Callistemon*, a scarlet *Melaleuca*, a crimson *Calothamnus*, and several species of *Jacksonia*.

And here we must take our leave of this highly interesting volume. Our quotations have been more copious, and our notice has extended to a greater length than we originally intended, but we trust that our readers will not object to it on these accounts, since we have presented them with a more complete sketch of the vegetation of these regions than has ever been given in so condensed a form. With regard to the localities, we fear there may be some difficulty in following them without a map, since many of the names are but of yesterday, and none of them can lay claim to much antiquity. In the present day, however, maps of these colonies are daily becoming more numerous and more correct, and these will furnish the means of tracing our traveller throughout his arduous and philanthropic pilgrimage. We

lay down the volume instructed and improved by its perusal, and, however distant such an end may have been from the real object of his journey, the scientific world must acknowledge having received at the hands of James Backhouse an invaluable contribution towards the Natural History of Australia.

ART. CLXXI.—*Varieties.*

365. *New locality for Saxifraga Hirculus.* I have taken the liberty of sending you a few specimens of the rare *Saxifraga Hirculus* from a new locality, which I discovered in September, 1840, on the Westmoreland mountains. The place where I found it growing very plentifully, is a marshy piece of ground about three and a half miles S.E. from Crossfell mountain, about five miles N.W. from Caldron Snout, a waterfall already mentioned in your pages (*Phytol.* 74 and 113), and about a mile and a quarter S.W. from a shooting-box erected last year by the Earl of Thanet, at a place called Netherhearth. The specimens enclosed were gathered in August, 1842, when I paid a second visit to the spot: at the same time, and about 200 or 250 yards to the north of it, I discovered *Polemonium cæruleum* growing upon a limestone rock. I was very much surprised at meeting with the latter plant in such a wild and elevated situation, never having heard of its being found growing wild, even in more sheltered places, in this part of the country, but there cannot be the slightest doubt of its being indigenous.—*John Bell; Middleton in Teesdale, August 19, 1843.*

366. *New locality for Melittis grandiflora.* The readers of your valuable periodical may be pleased to know that *Melittis grandiflora* has been found in a wood on the Cotswolds, four miles from Cheltenham: this, I believe, is the most northern habitat yet known for this handsome plant. It was found last year for the first time, in a wood called Puckham Scrubs, by Mr. Gordon, of this town: it occurs in several spots in the same wood. In a boggy meadow near this, hundreds of the beautiful *Parnassia palustris* are now in bloom.—*J. Buckman; Cheltenham, September 2, 1843.*

367. *Note on an apparently undescribed Hieracium.* The plant I now enclose is not described by any writer on British plants. I have it under the MS. name of *Hieracium Hypochaeroides*. The plant grows at Malham Cove, and other places in the neighbourhood of Settle (in Yorkshire). You will find the plant mentioned by Smith

in 'English Flora,' (iii. 375), as *Hypochaeris maculata* : you will also find the same plant referred to the *H. maculata* by the following authors, viz., Withering, in his fifth edition, page 852 ; Watson, in his 'New Guide,' page 285 ; and Baines, in his 'Yorkshire Flora,' page 64. It is now fourteen years since I examined this plant, and found it to belong to the genus *Hieracium* ; and as it is now upwards of thirty years since this error crept into our books on British plants, I should think it quite time for it to be corrected : there is no doubt of its being a species of *Hieracium*, and a plant which is not described by any writer on British Botany. It may be described by continental botanists, and if it be, the name I have given to it will of course have to be given up, and the one adopted which had been given to it before. The enclosed specimen is one of its most common forms : you will observe it is two-flowered ; it is rarely found with one flower. At the first glance the plant has certainly a great resemblance to *Hypochaeris maculata*, but when subjected to a more minute examination it will be seen not to belong to that genus.—*Saml. Gibson ; Hebden Bridge, September 5, 1843.*

368. *Note on Plants apparently indigenous.* Since Sir William Jackson Hooker tells us (in the fifth edition of his 'British Flora,' Introduction, page viii.) that the "*Martagon Lily* and the *American Touch-me-not* can have no claim to be considered British plants," I would just ask Sir William seeing he has in that edition of 'British Flora,' inserted the ITALIAN RYE-GRASS without the asterisk to denote its being naturalized, or any of your readers, what claim that plant can have to a place in our Flora, since it has not yet gone beyond the bounds of cultivation, and it is but a very short time since it was brought to this country ? If I had found the *Mimulus luteus* on our list, I should not have been half so much surprised as I was to find that the *Italian Rye-Grass* had found its way into our Flora, for indeed the *Mimulus luteus* has often been found where it might have been considered truly wild, had we not known from whence it came. The following is an extract from a letter which I received from Mr. John Gilbertson, of Preston, dated September 2, 1843. "Perhaps you will be kind enough to inform me whether the monkey-plant, so much cultivated in our gardens, is a native of this country, at least if it is known to be so ? I had the pleasure of finding it in great abundance a few weeks ago." We might mention a great many plants which has quite as much claim to a place in our Flora as the above *Lolium* can have.—*Id.*

369. *Note on Cystopteris regia and C. alpina.* At page 712 of

‘The Phytologist,’ I find the following question — “Are the plants published under the name of *C. regia* and *C. alpina*, in the Lancashire fern list (Phytol. 477), identical with the Layton plants?” In reply to this question, I would say that our plants, so far as my observations have gone, are referrible to one species: if I were to consider them more than one species, the *C. regia* of Smith and the Layton plant would not be the same, nor would either of them be the true *C. alpina*: the *C. regia* of Smith and the Layton plant are as distinct as any two forms I have seen. I cannot at present give your correspondent any particulars concerning my *Cystopteris*, as most of them are now in the hands of Mr. Newman; but if looked over there will be found a few specimens of the *Layton plant*, and one of Sir James Edward Smith’s *C. regia*, *which is from his own hands*, and likewise a specimen of the *Snowdon plant*, which is from one of the parties mentioned by Smith; and I think that if Mr. Newman looks over my *Cystopteris* (those from Broadbank and Cliviger) he will find amongst them plants that are not very unlike Smith’s *C. regia*, and others which are somewhat like the Layton plant, and perhaps a few others which are quite as distinct as any of the forms pointed out by Smith and others.—*Id.*

370. *Note on Vaucheria terrestris, Protonema muscicola, &c.* Having observed the *Vaucheria terrestris*, DC., to be almost constantly accompanied by the young state of some moss — probably *Tortula unguiculata* — I am inclined to think that this Alga is merely a young state of the moss, previous to the development of the stem and leaves. This is confirmed by a remark of Hooker, in his fifth vol. of the ‘English Flora,’ who says that *Byssus velutina*, L., must be excluded from the list of cryptogamic plants, as it has been observed to be a young state of one of the *Polytricha*. This *Byssus velutina* is quoted by Vaucher, in his work on *Confervæ*, as a synonyme of his *Ectosperma terrestris*, and this again is a synonyme of *Vaucheria terrestris*. This would seem to prove that the genus *Vaucheria* is nothing more than a rudimentary state of various mosses. Hedwig states that the sporules of mosses, in germinating, produce ramified, cylindrical, primordial leaves, of indeterminate number, and that these leaves are more permanent in *Phascum serratum*, &c., than in most mosses. But the various species of *Vaucheria* are said to bear fruit, and that they are reproduced by the ovoid vesicles observed in their ramifications. I do not think there will be any great difficulty in explaining this away, for we observe many cryptogamic plants which, when partially developed, put on a totally different appearance

from that of their full development, which only takes place under favorable circumstances, and yet these partially developed states have a power of reproduction. I imagine then that the *Vaucherias* are the rudimentary states of the mosses, and that the ovoid vesicles are analogous to granules, and reproduce the primordial state of the moss, which only develops perfect leaves and fruit under favorable circumstances. Again, I have never found *Protonema muscicola*, which is common on old stumps, unaccompanied by a *Jungermannia*; and I have thought, from careful examination, that I could detect a connexion of the filaments, of which this *Alga* consists, within the base of the stem of the *Jungermannia*: if so, this *Protonema* will be the analogue of *Vaucheria* among mosses. *Protonema cryptarum* is suspected by Agardh to be the young state of a *Phascum*. There is a curious species which grows on the stems of *Orthotrichi*,—*P. Orthotrichi*. I suspect this to consist of aerial roots of the moss, which are sometimes much more produced than at others. I should like to have the opinions of more experienced cryptogamic botanists than myself on these points. Before I close this note I would wish to remark that *Thelephora cærulea*, *Schrad.*, among the Fungi, and *Mycinema phosphoreum*, *Ag.*, among the Algæ, of Hooker's 'English Flora,' are the same plant, and are both referred to *Auricularia phosphorea*, Sow. Fung. III. t. 350.—*Ph. B. Ayres; Thame, September 7, 1843.*

371. *Short Account of an Excursion to Tilgate Forest and the West Hoathly Rocks.* On Monday, August 21st, 1843, accompanied by three botanical friends, I made an excursion to the rocks at West Hoathly, and from thence to Tilgate Forest, starting from the Three Bridges station on the Brighton railway: our attention was first attracted to a large pool, by the side of the railway, and near the station, and although so recently excavated, it furnished us with many plants of interest; among them were *Centunculus minimus*, *Erythræa pulchella*, *Scirpus setaceus*, *Juncus lampocarpus*, *Typha latifolia*, *Alisma Plantago*, with several other aquatic plants: a short distance up the lane towards Worth, and near the pool, we collected *Hypericum Androsæmum*, *Blechnum boreale*, *Aspidium spinulosum*, *Rubus Koëbleri* and *R. macrophyllus*. We then proceeded to Turner's hill, distant about three miles: the lane through which we passed was very sandy; the common hedge-plants here were *Erythræa Centaurea*, *Solidago Virgaurea*, *Aspidium Filix-mas*, *Calluna vulgaris*, *Erica cinerea*, &c. On the left hand bank, near Turner's Hill Gate, some very fine specimens of *Asplenium Trichomanes* were collected. The rocks, which are about one mile from this spot (direct south),

are situate in a wood on the left hand side of the road, and form almost a semicircle, terminating very abruptly, and being conspicuous objects wherever they are freed from the thick underwood: upon these rocks flourishes, in great luxuriance, the beautiful *Hymenophyllum Tunbridgense*, covering, in some instances, the entire face of the rock, but growing most vigorously in the crevices where the sun never penetrates. After enjoying the delightful view from the summit of the highest rocks, where we observed *Vaccinium Myrtillus* and *Convallaria majalis*, in large patches, but not in flower, we turned our steps towards Tilgate Forest. On reaching Turner's Hill Gate, we took the left-hand road, which, after about three miles' ride, and finding *Linum angustifolium* in great plenty on a bank in the lane, brought us to "Starve-Mouse Plain," a swamp lying between Pease Pottage and the Brighton railway, where we commenced our researches, *Exacum filiforme* being the chief attraction, which we soon found, growing in the greatest profusion and of extraordinary size, some specimens measuring five inches in height and much branched: we also collected *Lycopodium Selago*, *inundatum* and *clavatum*, *Narthecium ossifragum*, *Eleocharis multicaulis*, *Hypericum elodes* and *humifusum*, *Scutellaria minor*, *Radiola Millegrana*, *Melica cærulea*, *Erica Tetralix* with white flowers, and the elegant *Campanula hederacea*, which abounds in this locality. We then returned home, well pleased with our day's excursion and success, and not without the hope of revisiting the same spot another year, when we trust that others of our friends will join us, and participate in the enjoyment of such a delightful ramble.—*W. Hanson; Reigate, September 7, 1843.*

372. *Note on Lastræa spinulosa.* You are quite correct in what you say (Phytol. 719) that *Aspidium spinulosum* of 'English Botany' is only a young weak state of *dilatatum*: Mr. Mackay, who supplied the very specimen there figured, assured me so years ago.—*W. T. Bree; * Allesley Rectory, September 7, 1843.*

373. *Another word on Lastræa spinulosa.* I hasten to correct an error in my former communication (Phytol. 719), wherein I expressed a belief that *linearis* is "the only distinguishing epithet the plant has ever received." I have since found that Roth was well acquainted with our plant, and described it very carefully under the name of *Polystichum spinosum*: our *Lastræa dilatata* is also most elaborately described as *Polystichum multiflorum* of the same author: the nomenclature of the species will therefore require careful investigation.

* In a letter to E. Newman.

The names *dilatata* and *spinulosa* are apparently synonymous, and both apply to a small group of species rather than to a single one. — *Edward Newman; Peckham, September 8, 1843.*

374. *Mr. Gibson's query on Carex distans.* As no one has yet given a reply, I beg to make some remarks, in order that a question which the editor has thought worth insertion (Phytol. 680) may not be altogether barren and unprofitable. It certainly was not to be expected that a botanist who, by his frequent contributions to this journal, would be regarded as an adept in Carices, should find himself at fault in reference to the subject of his enquiry. Perhaps the fact of his not having yet received an answer may be regarded by some as a proof of the great obscurity of the passage alluded to; I, however, have formed a different conclusion. Whenever the honest desire to acquire useful knowledge is the motive for putting a question, and then only, I think it the duty of every one who is able to do it to furnish the desired information. The querist, however, should endeavour to ask those who are most likely to afford it. In this case, I think the person who has remodelled the specific characters of *C. distans* and the allied species, in the 'British Flora,' is most competent to clear up the difficulty. If Mr. Gibson cannot do it himself, and if he will assure me in the next Phytologist that *he does not know the meaning of the writer in the passage alluded to*, I will undertake to procure the desired information for him from the fountain head. Of course my own conjectures on the subject, were I to express them, would be open to further question; and remembering what Seneca says, "Many would attain knowledge if they did not fancy that they already had it," I shall make no pretensions to superior skill in a matter which seems so dark and difficult to the enquirer.—*W. Wilson; September 8, 1843.*

375. *Note on Lathyrus Aphaca and other Plants in the vicinity of Halstead, Essex.* The rare and curious *Lathyrus Aphaca* occurs in several places in this immediate neighbourhood. I have lately noticed it in what I imagine to be an unusual situation, viz. near the edge of a pool in an old marl-pit, where it appeared to thrive remarkably well, and is now ripening its seeds copiously. A short distance from the same spot *L. Nissolia* occurs, and is by no means an uncommon plant here, confining itself however entirely to calcareous soils, and associating with such plants as *Trifolium ochroleucum* and *Senecio tenuifolius*. As interesting plants of this locality, in addition to the above, I may mention the following as having come under my own observation: — *Ranunculus hirsutus* and *parviflorus*, *Thlaspi ar-*

vense, *Cardamine amara*, *Dianthus Armeria*, *Hypericum Androsæmum*, *Epilobium roseum*, *Myriophyllum verticillatum*, *Sedum dasyphyllum*, *Chrysosplenium alternifolium*, *Tragopogon porrifolius*, *Anthemis arvensis*, *Linaria spuria*, *Veronica scutellata* and *Buxbaumii*, *Ophrys apifera*, *Carex vesicaria*, and *Alopecurus fulvus*. — *Thomas Bentall*; *Halstead, Essex, September 8, 1843*.

376. *Localities for Villarsia Nymphæoides*. This rare plant, confined to a few spots of our island, occurs pretty abundantly in the river Thames, in the neighbourhood of Hampton Court and Hampton, Middlesex. The first locality that I shall mention is at the entrance to the village of Sunbury, where the river is open to the road between that place and Hampton. It occurs again in another spot, a field or two lower down the river; and a third time near Hampton Court, where the river is open to the Hampton road. A fourth locality is a little above Kingston Bridge. All of them are on the Middlesex side of the Thames, and the plant, especially in the first three, covers a considerable surface of the water. The locality above Kingston bridge I have been acquainted with since the autumn of 1837; the others I discovered a few days since. I have not had an opportunity of verifying the locality at Walton, as mentioned in Smith's 'English Flora.'—*Jas. E. Moxon*; *Twickenham, September 11, 1843*.

377. *Note on the Habits and mode of Growth of Villarsia Nymphæoides, in the above localities*. The main root of the plant seems to be firmly fixed in the muddy bottom of the river, from whence it sends out numerous creeping stems of considerable length, from which arise the floating leaves, placed singly at considerable intervals, and furnished with a tuft of radicles at their point of junction. When fully developed they are slightly sinuated, and wavy at their margins. The flower stems, placed at irregular intervals along the creeping stem above-mentioned, are from one to three feet long, mostly destitute of leaves, excepting at the top, where they are collected into a kind of tuft, from which arise the flower buds in considerable numbers. The flowers, which float just above the surface of the water, are extremely fugacious, the petals being thin and delicate, and only opening fully in the sunshine. The plant, in all these localities, grows in quiet nooks of the river, where it floats, undisturbed by the current, and sheltered from the wind.—*Id.*

378. *Note on Equisetum umbrosum*. As I read your article on *Equisetum umbrosum* (*E. Drummondii* of British botanists) a few evenings since, within little more than a hundred yards of where the species grows, I resolved by the next post to send you some fresh-

gathered specimens : this was done, and I hope they reached you in safety. They are from the locality (Wolf-hill) in which the plant was first found in Ireland, by Mr. Thomas Drummond, for in this country, as well as in Scotland, he was the first botanist to notice it. This he did when spending a day with me in botanizing the Belfast mountains, at the time that he was curator of our botanic garden. For the better understanding of this interesting and little known species, I would suggest, if such be not already your intention, that another figure be given in 'The Phytologist.' The figures already published are very good, but the greater number of readers will, I apprehend, judging from *them only*, carry away the impression that the *E. umbrosum* is a sparingly branched species compared with *E. sylvaticum*, represented in a preceding page of 'The Phytologist, whereas, on the contrary, its foliage is still more dense and drooping. True, in your description of the barren stem, something like this is stated, but your figure, though admirably representing the plant when it begins to shoot in spring, gives no idea of it in its matured state. On the steep banks of a mountain-stream, about a mile southward of the similar locality at Wolf-hill, I this summer remarked a few plants of *E. umbrosum*. In both places the plant grows almost exclusively on the side of the glen facing the north. The first English name applied to this species — the blunt-topped — is expressive, as distinguishing it from the comparatively spiral *E. sylvaticum*, the only British *Equisetum* to which it seems to me to bear even a general resemblance. — *Wm. Thompson; Donegal Square, Belfast, September 10, 1843.*

379. *Note on Osmunda regalis, near Swansea, Glamorganshire.* I may just adduce, as illustrating the changes caused by cultivation, and showing that even within the bounds of a garden, plants may yet continue *wild in their prison* till they are semi-domesticated, and that therefore the *vicinity*, even if a garden, may not be *always* good ground for doubt that a plant is indigenous there, — the fact of *Osmunda regalis now growing* within a nursery garden at Cwm Gwynne, about a mile and a half from Swansea, towards Gower. I went, in company with my friend Mr. James Buckman, of Cheltenham, to see a nursery garden, some acres in extent, at Cwm Gwynne, which had been enclosed from the waste about five years, and is now in a high state of cultivation, with all the usual stock of a nurseryman and market gardener. It was remarked to us by the lessee of the ground, that there was a boggy spot in the centre of the nursery, probably the best land, but which he had not yet brought under the spade. Happening to cross this place in our peregrinations, I thought I saw a variety

of *Lastrea Filix-mas*, not so common as many other ferns hereabouts, but when on the point of gathering it, to our surprise it proved to be the barren frond of *Osmunda regalis*. In the same boggy ground we noticed *Pedicularis palustris*, *Viola palustris*, &c. Now, of course, the existence of the *Osmunda* here will depend upon the piece of boggy ground being drained or not. Should it be neglected, as is not improbable, there being abundance of ground, the *Osmunda* and other bog-plants may remain for half a century, surrounded by cabbages, kidney-beans and onions. I should say that the fronds of *Osmunda* were all barren.—*Edwin Lees ; Ilfracombe, September 12, 1843.*

ART. CLXXII.—*Proceedings of Societies.*

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

Cork, Thursday, August 17, 1843. Section B.—Chemistry and Mineralogy. 'On the Influence of Light on the Growth of Plants,' by Mr. R. Hunt. — The peculiar influence exerted upon the germination of seeds and the growth of the young plants by coloured light, has been for some years the subject of the author's investigations. The results show the surprising powers exerted by the more luminous rays in preventing germination, and in destroying the healthful vigour of the young plant. Plants, when made to grow under the influence of the red rays, bend from the light as something to be avoided; while the blue or chemical rays are efficacious in quickening the growth of plants. Since the publication of the last Report, the author has tried plants of a great variety of kinds, and the same effects have been produced. It has, however, been found, that although blue light accelerates germination, and gives a healthful vigour to the young plant, its stimulating influences are too great to ensure a perfect growth. The strength of the plant appears to be expended in the production of a beautiful deep green foliage; and it is only by checking this tendency, by the substitution of a yellow for a blue light, that the plant can be brought into its flowering and seeding state. The etiolating influence of the green rays was observed upon, as well as the power which plants possessed of sending out shoots of a great length in search of that light which is essential to their vigour.

Section D.—Zoology and Botany. Dr. Lankester read a paper from Mr. Robert Milliken, on a supposed anomaly in the fructification of the violet.

Mr. Babington said that the author of the paper had described the appearances correctly, but had come to a wrong conclusion. The fact was, that in *Viola* some flowers were later than others in appearing, and that the later ones were generally imperfect, not having any corolla. The later flowers appearing without petals had misled Mr. Milliken to the supposition that these produced their fruit as the result of the flowering of the first flowers. Prof. E. Forbes stated that the absence of petals was a permanent state of some of the species of violet.

Mr. Mackay exhibited specimens of the Irish *Saxifraga*s. He called attention to the species resembling the London Pride (*Saxifraga umbrosa*), and with the specimens of the species he also exhibited several varieties of *S. Geum*, *S. hirsuta*, *S. h. polita*, &c. Mr. Babington remarked that *Saxifraga* was a difficult genus to study. There were many specimens on the table, which, if they came from different countries, would

be naturally described as species, but which, as they were all gathered in Ireland, he had no hesitation in calling varieties. It was no proof that a plant was a species because it remained the same in cultivation for a great length of time, for many varieties did that. He had paid great attention to the Saxifrages, and of those belonging to the London Pride tribe, he believed that only *S. umbrosa*, *elegans*, *Geum*, and *hirsuta*, were species. The variety, *S. u.* of Mr. Mackay, was not the London Pride of the English gardens, which was identical with the London Pride of the Pyrenees. Prof. Forbes said, that the difference between botanists, with regard to species and varieties, could only be reconciled by ascertaining from each writer an estimate of the value he attached to particular characters. For the want of this there was much confusion even in Botany, but the evil was much greater in Zoology. The vague manner in which the characters of animals were drawn up by British zoologists, was a constant cause of complaint among continental naturalists.

The Rev. W. Hincks then called attention to two living specimens of *Neottia gemmipara* of Smith. This very rare plant had been discovered by Mr. J. Drummond in a salt marsh near Castleton, Bearhaven, in the county of Cork, in 1810. From an imperfect specimen, Sir J. E. Smith had described and figured it, and it had not been seen again till 1841, when it was re-found by Dr. Sharkey. Only one specimen was again obtained, and it was with difficulty identified with the original specimen in the Linnean Herbarium in London. Dr. Wood and Dr. Harvey had, during the past week, both gathered living specimens, which were now on the table. The original plant was not a *Neottia*, as had been supposed by Smith, but was now referred to *Spiranthes*. Mr. Babington stated, that he had carefully examined the plant on the table, and believed that it was a genuine *Spiranthes*. It was a matter of great interest, as probably this plant was one of the rarest in the world. There was no record of its having been found anywhere but in the locality from whence these specimens were brought. Mr. Hincks stated, that among some Californian plants received in London, had been found what appeared to be a *Spiranthes gemmipara*.

Dr. Allman exhibited specimens of a *Linaria* which he had gathered in Ireland. He believed it to be a new species, and had described it at a meeting of the Royal Irish Academy. It had been supposed to be the *Linaria Italica* of Treviranus, which had also been found in England, but this plant differed in many respects from *L. Italica*. Mr. Babington thought the plant of Dr. Allman differed from the English *L. Italica*. Should this *Linaria* be a new species, it will probably be new to the European Flora. Dr. Allman stated that botanists in London had pronounced his plant a hybrid, and Mr. Mackay concurred in this opinion. Dr. Allman then exhibited specimens of the very rare *Trichomanes speciosum*, and also of one discovered by Mr. Andrews of Dublin, which differed from it in many points, and which might probably turn out a new species. The principal features of difference that this fern presented were, the possession of bipinnate fronds, long bristles, and the triangular form of its fronds: in all these points it differed from *T. speciosum*. Mr. Mackay had cultivated the plant in question since Mr. Andrews discovered it, and it was his conviction that it was a new species.

Friday, August 18. Section E.—Medical Science. Dr. Pickells read a paper 'On the deleterious effects of *Ceanothus Crocata*.'—This plant, he observed, was known to be one of the [most] virulent poisons of the indigenous British Flora, but was stated to be very rare in Great Britain by Dr. Smith, in the letter-press of Sowerby's 'English Botany;' this was by no means true as regarded Ireland, particularly in Cork,

and other southern counties, in which it grows in great abundance. Dr. Pickells collected nearly thirty cases of death by eating the root, the quantity in one instance not exceeding "the top of the finger;" he described the symptoms as exhibited in those cases,—insensibility, convulsions, locked jaw, delirium and insanity; and pointed out the proper mode of treating such cases, by detailing several which were cured by the exhibition of strong emetics, diffusible stimulants, enemata, &c. He concluded by making some observations on the poisons used by the ancients in judicial executions; he thought this might have been the plant used to destroy Socrates, and not the *Conium maculatum* of modern Botany; and from the symptom of insanity, he thought that this was the plant designated as the "insane root" by the poet. This plant Dr. Pickells stated to be equally injurious to black cattle and horses, as to man; he believed there was no direct antidote known; melted butter was given in some of the cases which recovered, and is popularly deemed a preservative against its effects. The root is frequently used as a discutient external application to tumours, and many of the accidents have occurred by eating it, when gathered for this purpose.—*From the Report in the Athenæum of Saturday, August 26, 1843.*

BOTANICAL SOCIETY OF LONDON.

September 1, 1843. — J. E. Gray, Esq., F.R.S. &c., in the chair. Dr. Wood, of Cork, presented a specimen of *Neottia gemmipara*, found in Ireland; * and British plants had been received from Mr. E. Doubleday, the Rev. A. Bloxam and Miss Worsley. Dr. Thomas Taylor presented the following four species of *Jungermannia*, new to the British Flora:—*Jungermannia reclusa*, (*Taylor, MS.*), *J. germana* (*Taylor, MS.*), *J. fragilifolia* (*Taylor, MS.*), and *J. riparia* (*Taylor, MS.*)

Read,—“Observations on some Varieties of *Hypna*, and on a new species of *Lichen*,” by Dr. Thomas Taylor. Local collections of Cryptogamic plants are instructive in two ways, by contributing to our knowledge of the geographical distribution of the species, and by pointing out the directions which the characters of the varieties take when acted on by diversity of circumstances of external agencies. The cryptogamic collection of Dr. G. Watson, from the vicinity of Philadelphia, presented to the Botanical Society of London, elucidate in some particulars the foregoing remark; not however to a great extent, as the collector seems to have satisfied himself with gathering the largest and most prominent species, and to have omitted or overlooked the minuter and more inconspicuous kinds. Yet what has been collected is far from being destitute of interest and value.

Thus he has remitted to London a great profusion of *Neckera cladorrhizans* (*Hed.*) Now this moss was first described from Swiss specimens by Hedwig; afterwards it was sent to this country from Nepal by Dr. Wallich, and from New York by Dr. Torrey; finally we have it in the present collection from Philadelphia.

In Great Britain or Ireland, so fertile in mosses, it is totally unknown. We may therefore conclude that this species is altogether continental; although for the present we are unacquainted with those laws that deny to it an insular locality.

We have *Hypnum salebrosum* (*Hoffm.*) by its smaller size imposing upon us the form of a new species; but although the branches are more compressed and shorter,

* See p. 750.

the leaves somewhat narrower, the pedicels more slender, and the capsules soon turning black, yet in all essential characters it entirely agrees with our British species.

Hypnum plumosum, (L.), with us assumes diversified forms, among which a remarkable one collected by the late Miss Hutchins, at Glengariff, has all the leaves decidedly secund. The variety gathered by Dr. Watson, has the upper leaves alone heteromallous; but then its more erect and longer capsules, and the less concave but substriated leaves, claim the adjustment of the balance between species and variety by a practised hand. Dr. Taylor considered it less hazardous for the present, to leave it in the latter rank. But the impatient may say, when then are we to expect the means of exactly deciding? The answer is, perhaps not until some muscologist enjoys the privilege of seeing both growing in their native localities. For there is much value in the character taken from the habit of a plant. Many modern elevations of varieties to the rank of species have been first suggested by the silent appeal of the look of the growing individuals. In Dr. Watson's state of *Hypnum rutabulum* (L.), a mark hitherto considered essential to the species seems to be vanishing; the pedicels exhibit scarcely any appearance of roughness immediately below the capsules: in all other particulars the Philadelphian and European mosses coincide. But Mr. Wilson, whose observations on this tribe are always as original as acute, had long since taught Dr. T. that the scabrous state of the pedicel in this species is liable to great variation; inasmuch that he seems disposed to doubt whether *Hypnum vagans* of Hooker, in Drummond's 'Musci Americana,' separated principally on account of the smoothness of the fruitstalks, be really distinct from *Hypnum rutabulum*, (L.)

Among the very few lichens sent by Dr. Watson, is a species of *Cænomyce*, which may be considered new, and is called *Cænomyce foliacea*. Its specific character may be thus given.—"Podetia two inches high, loosely caespitose, dichotomously branched, the ultimate branches subulate, and tipped with brown; the buds in flattened granular pale green elevations of the cuticle, soon expanding into flat lobes, which are subpinnately branched and crenate, pale glaucous above, snow-white beneath, unaltered by moisture. There are no apothecia present."

The generic name is that of Acharius, which perhaps should not be abandoned but upon the clearest necessity. The modern subdivision of the genus into *Cladonia* and *Scyphophorus* appears attended with no advantage, while the species of these two tribes are, by the confession of the adopters themselves, joined by links that appear inseparable from either set. Indeed, on this question, the present plant is quite in point, having all the habit of *Cænomyce Sparassa* (Ach.), (*Scyphophorus* of Fée and DeCand.), with the attenuated and subulate branches of *Cladonia* of the same authors.

The buds of lichens have not received the consideration from botanists which their importance merits. Hitherto the characters have been drawn from the thallus or from the apothecia alone: but the buds by which, for the most part, these plants are multiplied, and which, if watched during development, present most remarkable features, should be hailed as a new and welcome element for specific distinctions.

In *Cænomyce Sparassa* (Ach.) the buds originate in coarse white granules, thickly set, and rising at once above the surface of the podetia; in our plant they are flat, scarcely eminent above the cuticle of the podetia, pale glaucous green from the beginning, and not so densely crowded, nor do they expand into lobes so linear. Another character may be taken from the branches of the podetia, which in the former are nearly parallel and of equal thickness, except at the very summit, while in *Cænomyce foliacea* they are more gradually acuminate and divaricated above.—G. E. D.

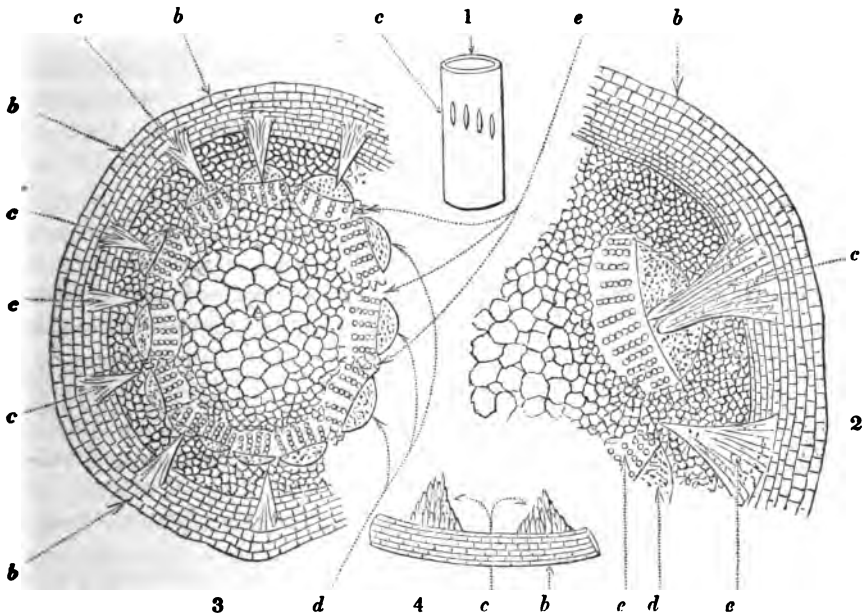
THE PHYTOLOGIST.

No. XXX.

NOVEMBER, MDCCCXLIII.

PRICE 1s.

ART. CLXXXIII.—*Notes on the new British Cuscuta* (*C. Epithymum* β . *Trifolii*, *Bab.*) By DANIEL WHEELER, Esq., M.R.C.S.L.



Magnified figures to show the connexion between the Cuscuta and the clover.

Fig. 1.—*a*, portion of clover-stem enlarged. *c*, the apertures by which the Cuscuta penetrated.

Fig. 2.—A highly magnified representation of a very thin transverse section of a portion of the stem of clover, with the Cuscuta attached. *b*, Stem of the Cuscuta. *c*, Spongioles of Cuscuta penetrating the clover-stem; that on the right having a bifid extremity reaches the medullary sheath, that on the left merely enters the cellular tissue. *d*, Bundles of woody fibre. *e*, Medullary sheath.

Fig. 3.—A less magnified representation of a transverse section of a clover-stem, with dodder attached to it. A portion is left unfinished, that the relation of parts may be shown more distinctly. The letters apply to the same parts as in fig. 2.

Fig. 4.—A portion of dodder-stem which has not yet attached itself to clover, magnified to show the shape and cellular structure of the teeth-like processes [spongioles].

HAVING heard from my friend Mr. Hanson, that the new Cuscuta was growing upon clover in this neighbourhood, I visited the field, and found several patches of it, varying from a few feet to between two and three yards in diameter. Its general appearance cannot be better described than in the words of Professor Henslow. It looks

like "fine closely-tangled wet cat-gut carelessly thrown down on the clover;" it is of a pale reddish-brown or yellow colour, of a more robust habit than *Cuscuta Epithymum*, but not so strong as *C. europæa* and with fewer heads of flowers; these are bracteated, sessile, white, with a spreading limb to the corolla, and give out a faint, fragrant odour; the stems upon which they are placed are frequently long, round and filiform, occasionally giving off lateral branches, the axils of which contain a few flower-buds, these ultimately increase and form heads.

The destruction caused by this plant is very great. All the plants around which it clings are dead or dying; pieces of clover, quite black and withered, as if scorched, may be obtained with the *Cuscuta* upon them in a flourishing condition. It does not confine itself to clover, but seems to attack indiscriminately all the plants in its neighbourhood. I have found it upon *Prunella vulgaris*, *Triticum repens*, *Polygonum aviculare*, *Plantago lanceolata*, *Sherardia arvensis*, and even on *Orobanche minor*, thus affording an example of one parasite living upon another. It seems especially to luxuriate upon *Prunella vulgaris*; at least I have generally found several heads of flowers on that, when there have been scarcely any on the other plants, or on the clover in its neighbourhood, completely strangled by the Dodder.

The characters, drawn from the examination of numerous specimens, appear to me to be the following:—

Clusters of flowers bracteated, sessile, approaching a globular form, the flowers in each cluster varying in number from two to twenty, the average number being about fifteen: tube of the corolla *at first cylindrical, afterwards becoming somewhat ventricose*, scales palmately cut, converging: calyx *nearly or quite as long as the tube of the corolla*, sepals *white*,* ovate-lanceolate, acute.

Being a true parasite, the *Cuscuta* derives its nourishment from the plants to which it clings, as soon as it has inserted its suckers; and the mode in which this is accomplished is very interesting. The stem has a degree of viscosity readily detected by plunging the hand among a quantity of it; on withdrawing the hand, it will be found that the stems have a tendency to adhere to it, and probably it is this viscosity which at first enables the *Cuscuta* to attach itself to the clover &c., until it has twined itself round the stem of other plants; this it does by coiling itself round once or twice from left to right, or more frequently it makes several turns and then passes off to another stem,

* Occasionally tinged with purple.—*Ed.*

or to a leaf, for I have seen it send its suckers into the leaves of *Triticum repens* and *Plantago lanceolata*, as well as those of the clover. If we tear a small piece of the *Cuscuta* from off the stem of the clover to which it has attached itself, we shall observe some elliptical openings through which the teeth or processes [spongioles] of the *Cuscuta* have penetrated the structure of the plant, as in fig. 1, *c*. If we make an exceedingly thin transverse section of the clover (fig. 2), with the dodder (*b*) upon it, and place it under the microscope, we shall then observe the dodder sending wedge-shaped processes (*c* in figs. 2, 3, and 4) into the stem of the clover; these processes sometimes penetrate through the layer of woody fibre (*d*) to the medullary sheath (*e*), at other times they can only be traced into the woody fibre, and very often they only enter the cellular tissue. If we examine the long, unattached portions of the stem of the *Cuscuta*, we may see some of the wedge-shaped processes which have not penetrated any plant; these consist of a number of oblong cells, arranged in the wedge form, their long axis being placed at right angles to that of the dodder, and uncovered by cuticle; they are therefore admirably adapted both to penetrate and to absorb nourishment from the plants they attack.

I think it probable that the *Cuscuta* is chiefly nourished by the descending or elaborated sap, having met with many specimens of clover which were more withered below than above; if such be the case, the tight embrace of the dodder would act like a ligature, and thus, by retarding the flow of the descending sap, enable the dodder to obtain a greater supply of nourishment.

I believe there is little doubt that the clover from which I obtained my specimens was raised from foreign seed, therefore there is every probability that the *Cuscuta* was imported: it is most probably the plant alluded to by Mr. Babington in his 'Manual,' as the var. *β. Trifolii* of *Cuscuta Epithymum*.

DANIEL WHEELER.

Reigate, September 22, 1843.

[Mr. Wheeler's interesting paper was accompanied by recent specimens of the *Cuscuta*; these are identical with others previously received from Mr. G. S. Gibson, of Saffron Walden, who last year favoured us with a notice of the appearance of this destructive parasite in that neighbourhood, (*Phytol.* 466). Mr. Gibson has since obligingly forwarded recent specimens: the note which accompanied them will be found among our Varieties. During the past summer a *Cuscuta*, with a very slender, white stem, made its appearance on young plants of a *Cytisus*, in the propagating-house of a Nurseryman and Florist, at St. John's Wood: the species could not be ascertained, as the parasite did not flower, but perished after destroying the *Cytisus*. The following account of the habits and economy of these singular plants, we quote from a provincial paper.—*Ed.*]

"New Agricultural Pest.—Professor Henslow last week called attention to the silent but dangerous progress that is making by a new agricultural pest, the clover dodder, which threatens to destroy the clover crop altogether in some places.

"The dodders are a singular race of true parasites, inhabiting all the temperate and warmer parts of the globe, distinguished by botanists into numerous species, but all having the same manner of growth and multiplication. They are leafless annual plants, allied to the bindweeds [Convolvulacæ], and, like them, strangling whatever they lay hold of. Their flowers, which are small, appear in balls on the stems, speedily form fruit, and end in producing each four seeds, about the size of a grain of mustard, within which is coiled up an embryo plant, looking like a miniature snake. As the number of flowers in each ball is, in our common species, on an average, about fifteen, it follows that every ball will furnish about sixty young plants—whence the rapid spread of such pests may be easily understood.

"As soon as the seed of the Dodder is ripe, it falls to the ground, and usually seems to lie dormant till the succeeding year; sometimes, however, it is said to germinate immediately. When the spring returns, the embryo sends one end down into the earth to form a root, while the other rises upwards, like a small white thread or worm. At this time it is not a parasite, but seems to derive its food from the soil, like ordinary plants. It cannot, however, do so long, but withers and perishes, unless it touches some living branch or stem. If it succeed in doing so, it immediately seizes the live stem by means of a sucker, which is protruded from the point of contact; and then, twining from left to right, and forming more suckers as it twines, it establishes itself on its victim, and ceases to have any further connexion with the soil. From that time forward it is a true parasite, feeding on the juices of the plant it has seized upon. After making a few turns round the branch, and securing itself firmly in its new position, it again lengthens, and catches hold of some other branch, when more suckers are protruded; and thus it goes on—branching, and twining, and sucking, and branching again—until it forms that appearance which Prof. Henslow well describes as resembling 'fine, closely-entangled, wet catgut.' Now the dodder has a new and independent seat of life wherever it has twined round a branch; and as it is incessantly twining and separating, and twining again, a single plant is speedily in the condition of a polype—so that if it be cut into a thousand pieces, each piece will immediately go on growing, as if nothing had happened to it. Tearing the dodder in pieces then, so far from extirpating it, only multiplies the mischief, instead of arresting it.

"This short statement will show that it is a formidable enemy that has thus been unfortunately introduced to our fields; and, as these things are not very nice in their food, it is not impossible that the clover dodder may next take a fancy to our wheat-fields, unless we can speedily put an end to its presence. It is of little use to cut it in pieces—it is of no use whatever to do so, if the fragments are left where they can catch hold of anything else.

"As it is only an annual, it would be killed if we could prevent its flowering; but that is difficult, because of its hiding itself among the lower branches of plants, where it cannot be seen: and a few heads of flowers will soon renew it in a succeeding year. The right plan would be to dig up the clover where the dodder appears, so as to form a circle considerably beyond the patch apparently formed by it, and then to burn it in heaps; or, in cases where the entire field is infected by it, to sacrifice the whole crop, and burn it. This may appear a violent remedy, but it is the only one likely to be effectual; and even this will fail, if (which is not yet the case, but soon will be) the dod-

der is allowed to form its seeds: for they will fall on the ground, lie hid in the crevices, and reappear with the next crop, — when all the labour will have to be done over again.” — *The Ten Towns' Messenger, and General Advertiser: Saturday, September 23, 1843.*

ART. CLXXIV. — *Rarer Plants observed at Weston-super-Mare.*

By G. S. GIBSON, Esq.

I SEND a list of some of the rarer plants noticed at Weston-super-Mare, during a day's visit to that place in the summer of 1843.

Weston is a small but increasing bathing-place, pleasantly situated on the Bristol Channel, about eighteen miles from that city; and possessing considerable diversity of soil and situation, is a locality favourable to the growth of a variety of plants, some of which are peculiar to the vicinity of the sea, and others to hilly or woody districts. Doubtless, in a longer stay, this list might have been considerably enlarged.

Clematis Vitalba. Hedges.

Papaver Argemone. Cornfields at Uphill.

—— *somniferum.* Waste ground.

Glaucium luteum. On the shore.

Cakile maritima. Sandy shore.

Erysimum cheiranthoides. Waste ground.

Koniga maritima. Ditto.

Reseda alba. Several places upon waste ground, naturalized, but not really wild, and common in gardeus.

Helianthemum vulgare, (with white flowers). On the cliff.

Silene maritima. Sandy shore and cliffs.

Arenaria peploides. Sandy shore.

—— *marina.* Cliffs.

Hypericum montanum. On the hills.

—— *Androsæmum.* Sparingly on the cliffs.

Trifolium scabrum. Cornfields and dry banks, common.

Pyrus Aria. Rocks on the hills.

Apium graveolens. Ditches.

Trinia glaberrima. Downs near the signal-post, and at Uphill, near the church.

Petroselinum segetum. Uphill church-yrd.

Helosciadium repens. Marshy ground nr. the railway.

Fœniculum vulgare. Waste ground.

Eryngium maritimum. Sandy shore.

—— *campestre.* Sparingly by the side of a cornfield, by a private road leading up to a house beyond the church: there were only about ten plants. It is, I suppose, a hitherto unobserved locality for this very rare plant, and as such may be interesting to some of your readers.

Rubia peregrina. On the cliffs.

Asperula Cynanchica. Dry banks.

Valeriana rubra. Waste ground.

Cnicus acaulis. On the downs.

Conyza squarrosa. Rocks on the hills.

Aster Tripolium. On the shore.

Convolvulus Soldanella. Sandy shore.

Marrubium vulgare. Waste ground, sparingly.

Plantago maritima, Glaux maritima, and *Salsola Kali.* Sandy shore.

Chenopodium murale. Waste ground.

Rumex pulcher. Church-yard at Uphill.

Triglochin maritimum. Shore.

Ophrys apifera. Rocks on the hills.

Carex arenaria, Ammophila arundinacea,

Phleum arenarium, and *Triticum junceum.* Sandy shore.

Triticum loliaceum. Dry road-sides near the sea.

I searched along the shore a considerable time, without success, for *Herniaria glabra*, which in the 'Botanist's Guide' is said to grow there; and am ready to fear that it has become extinct, if indeed it ever grew there, and if some other plant in an immature state was not mistaken for it.

G. S. GIBSON.

Saffron Walden, August, 1843.

ART. CLXXV.—*Rarer Plants found near Ventnor, Isle of Wight.*

By G. S. GIBSON, Esq.

THE following is a list of some of the rarer plants found in the neighbourhood of Ventnor, Isle of Wight, during a week's stay at that place in the summer of 1843.

- | | |
|--|---|
| <i>Clematis Vitalba</i> . Hedges, abundant. | <i>Medicago sativa</i> . Near the east end Bonchurch. |
| <i>Papaver hybridum</i> . Cornfields, sparingly. | <i>Hippocrepis comosa</i> . Near St. Lawrence. |
| <i>Glaucium luteum</i> . Sea-shore, plentiful. | <i>Rosa spinosissima</i> . Near St. Lawrence, scarce. |
| <i>Fumaria capreolata</i> . Wayside at St. Lawrence. | <i>Epilobium angustifolium</i> . Near Luccombe chine. |
| <i>Matthiola incana</i> . Chalky cliffs at Steephill, near Ventnor, for some distance, chiefly in inaccessible places, and to all appearance wild. | <i>Apium graveolens</i> . Shore and cliffs in several places. |
| <i>Cakile maritima</i> . Bonchurch and Shanklin. | <i>Petroselinum segetum</i> . Not uncommon in cornfields, hedges, & waste ground. |
| <i>Silene maritima</i> . Between St. Lawrence and Niton. | <i>Sison Anomum</i> . Hedges, frequent. |
| <i>Arenaria peploides</i> . Shore at Shanklin. | <i>Crithium maritimum</i> . Cliffs at Steephill and other places. |
| —— <i>marina</i> . Cliffs nr. St. Lawrence. | <i>Pastinaca sativa</i> . Road-sides &c. comn. |
| <i>Linum angustifolium</i> . Abundant at Shanklin. | <i>Torilis infesta</i> . Cornfields, not uncommon. |
| <i>Lavatera arborea</i> . Waste ground at Ventnor and Shanklin. | <i>Smyrniolum Olusatrum</i> . Cliffs at Steephill. |
| <i>Hypericum montanum</i> . Rare near St. Lawrence. | <i>Viburnum Lantana</i> . Common in hedges. |
| <i>Geranium rotundifolium</i> . Old walls at St. Lawrence. | <i>Rubia peregrina</i> . Abundant. |
| —— <i>columbinum</i> . On the hills in small quantity. | <i>Asperula Cynanchica</i> . On the Downs. |
| <i>Euonymus europæus</i> . Hedges at St. Lawrence. | <i>Galium tricornu</i> . Cornfields near St. Lawrence. |
| <i>Lathyrus sylvestris</i> . Very abundant in the east end of the undercliff near Bonchurch. | <i>Fedia dentata</i> . Cornfields. |
| <i>Medicago maculata</i> . Near Bonchurch and St. Lawrence. | <i>Cnicus eriophorus</i> . East end, near Bonchurch. |
| | —— <i>acaulis</i> . Plentiful on the hills. |
| | <i>Carduus Marianus</i> . Waste ground near St. Lawrence. |
| | <i>Conyza squarrosa</i> . Shady hedges &c. |
| | <i>Pyrethrum Parthenium</i> . Waste ground. |
| | —— <i>maritimum</i> . Sea-shore at Steephill &c. |

- Cichorium Intybus*. Fields near St. Lawrence.
- Erigeron acris*. On rocks at the east end near Bonchurch.
- Inula Helenium*. Bonchurch, near the east end.
- Campanula hybrida*. Cornfields near St. Lawrence.
- Vinca major*. Shady hedge near St. Lawrence well.
- Gentiana Amarella*. On the downs.
- Chlora perfoliata*. On the downs and dry hedge-banks.
- Erythraea pulchella*. Cliffs and dry ground near the sea.
- Linaria Cymbalaria*. Wall near St. Lawrence well.
- *spuria*. Waste ground in several places.
- Melampyrum arvense*. Cornfields by the cliff between Ventnor and St. Lawrence and Niton; and on the rocks of the undercliff near St. Lawrence.
- Mentha rotundifolia*. Road-side near St. Lawrence, and in some other moist places.
- Galeopsis Ladanum*. Cornfields &c., frequent.
- Orobanche minor*.* Clover-field between St. Lawrence and Niton.
- *barbata*.* At the roots of ivy and grass about St. Lawrence, plentiful.
- Statice Armeria*. Between St. Lawrence and Niton.
- Atriplex laciniata*. Shore at Shanklin.
- Beta maritima*. Near Bonchurch.
- Rumex pulcher*. Road-sides &c. frequent.
- Thesium linophyllum*. On the downs in several places.
- Urtica pilulifera*. Near Luccombe chine.
- Orchis pyramidalis*. On the downs.
- Ophrys apifera*. Open sunny banks.
- Epipactis latifolia*. East end near Bonchurch, very sparingly.*
- Iris fetidissima*. Hedges & waste ground common.
- Tamus communis*. Frequent in hedges.
- Phalaris canariensis*. Waste ground, rare.
- Avena fatua*. Cornfields.
- Hordeum pratense*. Near St. Lawrence.

G. S. GIBSON.

Saffron Walden, August, 1843.

ART. CLXXXVI.—*Remarks on Botanical Classification.*

By THOMAS EDMONSTON, Esq., jun.

Baltasound, Shetland Islands,
September 25, 1843.

SIR,

The subject of the best mode of botanical classification is undoubtedly one not only of much interest, but of vital importance to the science; and having for some time entertained the opinion that the present system of entirely dispensing with an introductory or “artificial” scheme, is not only wrong in theory, and opposed to

* The differences existing between these plants seem to me too slight to constitute them separate species. They both grow in considerable abundance at St. Lawrence, and I could discover very little distinction between specimens of each. May not the trifling distinctions arise from difference of situation and other attendant circumstances?

the principles of philosophical classification, but almost impracticable in practice ; — I have thrown together a few notes on this important topic, in the hope that some botanist will either demonstrate the fallacy of my opinions, or be led to reflect on the incompetence of the “natural” or *fashionable* system to perform all that it promises. With this view the insertion of the following remarks in your valuable journal will oblige,

Mr. Editor,

Yours respectfully,

THOS. EDMONSTON, jun.

To the Editor of ‘The Phytologist.’

It has of late years become a favorite subject with naturalists, and especially with botanists, to cry down as unphilosophical and as unadapted for the extended knowledge and comparatively mature observations of the age, any system of classification which does not include in the definitions of its divisions a great mass of characters, but which assort the objects of which it treats in groups distinguished from each other by one, or at least by few characteristics. This seems to be the simple difference between the two kinds of classification, the “natural” and the “artificial.”

The object of the present remarks is not so much to enter into the more general principles of classification, as to endeavour to demonstrate and illustrate the proposition,—*That a simple artificial scheme is absolutely necessary as an easy introduction to the study of the science, by which a sufficient knowledge of species may be gained to enable the student to turn to the more complicated generalizations of the other system.*

With this view it will tend to give my remarks more precision and individuality, if I take the two best systems constructed according to the principles of the two methods, namely, the Linnæan, almost universally allowed to be the best artificial system, and the modification of Decandolle’s system adopted by Professor Lindley in his ‘Synopsis,’ which appears to be the best and most consistent of the natural methods, and the one in which its principles are seen to the greatest advantage, — as representatives of the respective modes of classification favoured by their authors.

It is a well-known fact, and one often quoted by the advocates of a natural scheme, that Linnæus never intended his sexual system to supersede a natural one, provided that should ever be discovered. But as in the state of the science at the time he lived, and the comparatively limited knowledge of vegetable structure he possessed, it was

not only impossible he could frame such a system, but also impossible, had it been done, that the state of botanical knowledge would have allowed of its practical utility ; — the object of Linnæus in propounding his artificial system was to furnish botanists with a method of classification, simple and easily acquired, and which would be the great help to gaining the knowledge necessary for constructing and using a natural system : and what was *then* necessary for the state of botanical knowledge *generally*, is, I contend, still indispensable to students *individually*.

To establish this position, it will be well to look first at a few of the general principles and uses of classification as applied to the two rival systems, and then glance at the advantages and imperfections of both.

In the first place, then, as *Nature creates only species*, and as classes, orders, sections, genera, or by whatever names other groupings than specific identity are termed, are merely contrivances for the greater facility of distinguishing and knowing species, I am at a loss to conceive the applicability of the term “natural,” as applied to the systems of Jussieu, Decandolle, Lindley, &c. ; the appropriation of the term must be either without meaning, or it must proceed upon two hypotheses, both of which, I apprehend, it will be found somewhat difficult to establish, namely, that plants have been created upon a certain plan, and thrown by Nature into classes, orders, genera and species ; and secondly, that this scheme of Nature is the same as some one or other of the natural systems : though these hypotheses may doubtless find supporters, I conceive it would be a waste of time to dispute them.

Let us hear Dr. Lindley on the affinities of plants. In his very able ‘Key to Botany’ (p. 40), he says, — “What we call the characters of plants are merely the signs by which we judge of affinity, and all the groups into which plants are thrown are in one sense artificial, *inasmuch as Nature recognises no such groups.*” ! What then is a natural system ? If no system exists in nature, whence this misnomer ? That no such system exists, is abundantly evident, and by Dr. Lindley’s own showing too, yet botanists speak of it as a settled thing ; and, strange to say, every time such a system is propounded, it is always perfect,—no link is wanting to bind its parts into a harmonious whole, till some new facts or plants are discovered that derange the fair edifice, which has now to be reconstructed only again to be destroyed. The first thing an unassisted student of Botany does, after gaining a knowledge of the rudiments of the science, such as the terminology &c.,

is, to endeavour, by means of descriptions, to ascertain the names of as many plants as possible; I do not mean to say that the name is all he searches for, but that is and must be the first step — it is the root of his knowledge, and without it he cannot proceed one step further. Here he finds the great benefit of classification; instead of having the descriptions jumbled together in a promiscuous heap, he can, by the aid of a good system, soon comparatively isolate the plant he wishes to name, and eventually identify it with some one or other of the species. By this means he begins to know plants, and puts in practice the technical knowledge he was before acquiring. A finished botanist has little or no need of classification. Suppose a botanist knows at once all the plants of Britain, and can tell their distinctions, history and uses; when he arrives at this point the utility of classification ceases; he knows species as species — as separate individuals, and unconnected with their congeners; and though system has been the great means of conducting him to this point, it is no longer of any use to him. And were it possible that in like manner one could be familiar with all the plants on our planet, in the same way would the aids of system be dispensed with; but as this pitch of perfection cannot be attained, and as we are always students—always have more to learn, so we can never lay aside the assistance of classification. Thus it evidently appears that the main use of classification is to assist us in the knowledge of species; classification is the means of acquiring a science,—not the science itself. Let us, by the means of system, learn the name of a plant, we have then many means of gaining the additional information, without which the mere name would be worth nothing. This is, I think, only confining system within its proper limits, without in the least narrowing the sphere of its usefulness. Without enlarging more on this head, which a little reflection will convince any one is and must be correct, let us now glance at the comparative merits of the two systems, as constituting an easy introduction to the knowledge of species.

There never has been a system which is not liable to exceptions; *and when species are classified in more than one set of groups*, this would be nearly impossible, as the different sets of characters used to distinguish the various divisions cannot always be accordant. A system in which the distinguishing characters are limited, is peculiarly liable to this objection; yet notwithstanding the latitude of definition and the vagueness of distinction too common in the characters of natural groups, how many exceptions stare us in the face at the first glance! We should imagine, considering the great outcry which has

been raised against the Linnæan system for this imperfection, that Nature's own system would be free from it: — no such thing! We have three grand groups — Dicotyledons, Monocotyledons and Acotyledons—principally characterized, as their names indicate, by having respectively two, one, or no cotyledons; but we have Acotyledonous plants among the Dicotyledons, as *Cuscuta* and *Utricularia*: *Myrtaceæ* is an order of the same class, but some of the species have but one cotyledon. *Ceratophyllum* and some *Cruciferæ* and *Boraginææ* have several seed-leaves, and some *Gramineææ*, an order of Monocotyledons, have two. This shows that even the primary divisions of the natural system are liable to this objection. Then how many anomalous genera are there shuffled and shifted about from this to that order, until, perchance, there must be a new creation of orders for their reception. Again, look at the *precision* of the characters of the orders. Let us take as an example of this quality the order *Ranunculaceææ*, as it is the first in the list, and quote (what are termed) its distinguishing characters, as they are given in Lindley's 'Synopsis.'

" *Sepals* 3—6, sometimes confounded with the petals.

" *Petals* 5—15, hypogynous, distinct, occasionally deformed.

" *Stamens* indefinite, hypogynous; anthers usually turned outwards.

" *Carpels* numerous, seated on a torus, one-celled, or partially united into a single many-celled pistil, one or more seeded.

" *Fruit* either consisting of dry achenia; or berries with one or more seeds; or follicles; or capsules.

" *Seeds* albuminous. *Embryo* minute. *Albumen* corneous.

" *Herbs* or very rarely *shrubs*. *Leaves* alternate or opposite — generally divided, with the petiole dilated and forming a sheath half clasping the stem. *Inflorescence* variable."—Synopsis of the British Flora, ed. 2, p. 7.

Is there a single definite character here? In the first place there may be either a perigone or the calyx and corolla blended together, as in *Anemone*, or a distinct calyx and corolla, as in *Ranunculus*; nay, in some species of *Clematis* the corolla is altogether wanting. The corolla may be regular or irregular, as in *Ranunculus* and *Aconitum*. The stamens are indefinite; the anthers introrse in *Actæææ* and *Pæonia*, extrorse in the rest of the genera. The carpels may be distinct, as in *Ranunculus* &c., or form a compound pistil, as in *Actæææ*. The seeds may be solitary or numerous; the fruit may be almost anything—pseudospermous, baccate, follicular or capsular. Finally, concerning external characters and general appearance, the plants belonging to this order may be herbaceous or suffruticose; the leaves may be simple or compound; and the inflorescence is like almost all the rest—"variable."

These characters are something like those employed by the French ornithologist, M. Vieillot, in defining his order *Grallatores*. "Feet moderate or long, robust, or slender. Legs half bare; toes slit or webbed, sometimes margined, two before only—three before only—or three before and one behind; pollex raised from the ground, or resting upon it only by the tip, or reposing upon it in its whole length; claws of various forms, not retractile; bill of various shapes."!! So much for a definite arrangement in Ornithology; this is also termed a "natural" system.

My object in bringing forward these instances is neither to undervalue the ability of the eminent authors of these systems, nor the utility of well-constructed natural systems in their proper place; but merely to show the very vague definitions which have crept into our modern classification, and the strange passages sometimes written when authors are determined to see nothing but some shadowy abstraction, which cannot be reduced to practice.

I cannot understand what is sometimes meant by the term, a "natural group." It is said to be a group whose individuals agree in the greatest number of points; and moreover, botanists will tell us that there is always a general resemblance among the members of a natural group (as indeed there must be if they are alike in the majority of their characteristics); now *Myosurus* has but little resemblance to *Ranunculus* or *Aconitum*, and yet they all belong to *Ranunculaceæ*: nor is *Adoxa* much like the ivy, yet both are classed in *Araliaceæ*. And if we examine the characters in detail, we shall find them as dissimilar as the general appearance; in fact, "natural" resemblances have often no existence but in fancy. In such divisions as *Compositæ*, *Cruciferae*, *Gramineæ*, *Malvaceæ*, *Leguminosæ*, *Labiatae*, &c., the species of which are very nearly allied, the general resemblance is doubtless striking; but let us not forget that these most generally belong to Linnæan classes, only differing in name from those of the natural scheme.

Notwithstanding Decandolle's advocacy of the Linnæan axiom—"Genus dabit characterem, sed non character genus,"—it is chiefly his losing sight of this principle, which, though it may sometimes be carried too far, is generally an admirable rule, that has occasioned the introduction into his system of so many vague and useless characters. What Linnæus applies to genera, is equally applicable to natural orders; but instead of endeavouring to find a common character or characters for the group to be established, it would almost seem, in some instances, as if a description were written, a number

of plants thrown together under it, and when some of them did not agree with the definition, exception after exception were interlined, until a great part of it looks something very like nonsense.

It appears to me impossible that when the same characters are employed to designate classes, orders, genera and species, that a distinct definition can ever be established. It is undeniable that certain characters are of ordinal, others of generic, and others again only of specific importance; and characters which in some plants may be used for the primary divisions, in others can only be employed for species. Experience alone is the test of this; and in consequence of this fluctuating importance of characteristic marks, it is impossible strictly to set apart such and such characters for such and such divisions; despite this fact, however, it is well known that there may be certain rules laid down which may very generally be followed, subject to some exceptions. And the tendency towards always employing the same marks of distinction for all groups, most inevitably leads to confusion and anarchy in any science. When it is borne in mind that all the divisions are in every case arbitrary, and when one character cannot be obtained another must be sought for—the cause of this difference of importance will be at once apparent. Enough however on this head. As it has been proved that all the divisions of botanists, under the names of classes, groups, alliances, orders, genera, sections &c. have no existence in nature, it of course follows that any system has for its only ground of utility the facilitating of the knowledge of species; thus in one view all systems are alike artificial, and the only test whereby to know which is the best, is to be found in their *practical utility*.

I object to the “natural” system as the best means of acquiring a knowledge of species, for the following out of many reasons:—

1. Because in this kind of system the principle of contrast or diagnosis is not sufficiently kept in view. A definition or specific character ought to embrace nothing but those points which distinguish the group it is defining from all others: instead of this being the case, the natural school substitutes cumbersome descriptions, containing little definite matter, in which differential characteristics are buried.

2. These differential characters themselves are often injudiciously chosen. This is especially apparent when some rather obscure and not easily discernible characters, derived from the structure of the ovules and seed, are employed to distinguish principal groupings. It is a rule that the characters of primary divisions ought always, when practicable, to be taken from some parts of the plant *easily seen*, or

at least not requiring such delicate microscopical investigation as the natural system often requires. The seed is, in my opinion, altogether too much used in the definitions of the natural school; all the analyses of natural orders are founded on the structure of this organ, and a student must be not only intimately acquainted with the variations of the seed—in itself a difficult branch—but must also have the facilities and knowledge necessary for extensive microscopic investigation, almost before he can cross the external boundaries. Has every student the apparatus necessary for this object? And is not the necessity for it likely to perplex and disgust the student?

3. The divisions are too much multiplied, and the differences between them often too nice. Many instances of this might be brought forward, for which we have not space at present. At all events a too great multiplicity of subordinate divisions must perplex the beginner, and throw unnecessary difficulties in his way.

These are some of the reasons which induce me to think that the "natural" system is not the one suited for initiating beginners into the science; and I shall now shortly mention a few of the principal reasons why the Linnæan system appears to me preferable for this object.

No one attempts to deny the facility with which the Linnæan system is acquired, and the great simplicity of its structure as compared with the other method; and the only controversy between the advocates of it and those of the natural scheme, is as to which is the easiest and most profitable in practice.

The points in which the Linnæan seems to me to surpass the natural method, are the following:—

There is nothing superfluous in the characters of the main groups: a distinct definition is established, and no diffuse details are allowed to interfere with the precision of this definition. By reason of this we at once come to the essential part of the character, and have no trouble to hunt it out from among a number of common characters. Again, these characters are drawn from parts of the plant very important in themselves, not liable to vary, and easily and at once recognized; the primary divisions are comparatively few in number, and for the most part, in the same ratio the difficulty of ascertaining any plant we wish to know is diminished. And finally, a very great degree of precision is unquestionably attained, by the employment of different characteristics to define different groups.

The objections sometimes urged against the Linnæan system, appear to me strangely unfounded. On this head Dr. Lindley has the

following remarks. "The student must be acquainted with the meaning of many technical terms; he must have his plant in different states of growth; he must procure the fruit; he must examine the interior of that part: in short he must go through a long and careful examination, which is entirely independent of the sexual system." Now if the sexual system set out with teaching Botany by intuition, so to speak, and dispensing with either the knowledge of technical terms or the examination of the parts of the plant, this criticism might be just; but as it does not lay claim to these properties, I am at a loss to conceive its applicability. At the same time with the above, Dr. Lindley goes on to say, "Now I distinctly assert that there is no difficulty in determining the natural orders of plants greater than that of making out the genera by the Linnæan system; in fact it is the very same thing, only with a different result: in the one case it leads to the mere discovery of a name, in the other to the knowledge of a great number of useful and interesting facts, independent of the name." Now if it be the case that the student must go through the same process—examine the same parts—in the one as in the other system, it will be singular if the amount of knowledge gained is not equal. In fact the examination necessary for the knowing the genus and species of a plant, after you have got at its class and order by the Linnæan system, gives as great an amount of information concerning the plant itself, as if this end were attained by the natural system, with this difference, that the information is far more easily acquired, and the process not nearly so complicated.

Botanists of the natural school thus blame the Linnæan system for compelling the student to examine the plant, which examination is the means of his gaining the great amount of information the natural system undertakes to teach, and then assert that the Linnæan student gains nothing but a name!! It is a favourite theme of animadversion on the illustrious Swede and his followers, that their system teaches nothing but names, and deals more in dry distinctions than in facts which lead to our more perfect knowledge of the subject: we will not retort on such critics that useless verbosities and aimless speculations constitute the main foundations of *their* system. That the beautiful precision introduced into a previously chaotic science by the master mind of Linnæus, had, when it fell into the hands of men of contracted minds, the effect of limiting the science more to the study of distinctions and of names than of facts and history, is not to be denied: but this is not the legitimate result of the Linnæan system;

and its perversion, by men incapable of appreciating or using it, does not militate against the scheme itself.

In opposition to the experience of Professor Lindley, who "was driven to seek refuge in the natural system from the difficulties and inconsistencies of the Linnæan," we could proudly point to names the greatest in the annals of the science, who trode in the steps of the Upsal Professor, — to Thunberg and Solander, to Banks and Woodward, to Smith and Hooker, and hundreds of others, both in this and every other country, who, under the banner of Linnæus, have been the principal means of raising Botany to her present station among the sciences.

The above are a few brief and meager notes on a very important and fruitful theme, and one on which I could have wished to enlarge more than my limits would permit. I hope, at no very distant period, again to recur to it in another form, when my reasons for entertaining the views here expressed will be more fully illustrated; but in the mean time if these remarks can only induce botanists to examine the merits of the two systems carefully and impartially for themselves, I am persuaded they will, in most instances, come to the same conclusion that I have done.

THOS. EDMONSTON, JUN.

ART. CLXXVII. — *Notice of a new British Calamintha, discovered in the Isle of Wight.* By WM. ARNOLD BROMFIELD, Esq., M.D.

I HAVE great pleasure in announcing, through your pages, the discovery by myself, on the 29th of August last, of a *Calamintha*, which will probably prove to be the true *C. officinalis* of the continental botanists, and is now in full flower. It is in a beautiful and picturesque wooded valley between Apes down and Rowledge, about three miles and a half from Newport towards Yarmouth in this island, that this fine addition to the *Labiata* of Britain grows in the greatest profusion and luxuriance, and I have no doubt as truly indigenous as the common *Origanum vulgare* and *Clinopodium* that accompany it, and which it even surpasses in abundance. Leaving Newport by the lower or southern Yarmouth road through Carisbrooke and Calbourne, and a little before arriving at Swainston, the seat of my friend Sir Richard Simeon, Bart., on whose estate the plant grows, you come to a farm house (Apes down) by the road side, and situated at the northern termination of the valley alluded to. Nearly opposite this farm,

on the other side of the road, is a low meadow, in which *Cyperus longus* may be found growing pretty plentifully, and flowering at the close of August and throughout September, if spared by the scythe, but it is neither so luxuriant nor so abundant as in another station near Niton, at the back of the island. Passing through the farm-yard at Apes down, a road conducts to Rowledge, at the upper end of the valley, the sloping sides of which are clothed with thick woods interrupted by bands or strips of down, whilst the centre is occupied by corn-fields; the soil is of a chalky nature, and full of loose angular stones. In these woods, on the right or western side of the valley, ascending from Apes down, the *Calamintha* may be found, growing amongst the long herbage and under the shade of the bushes, in vast quantity, for a great part of the way towards the head of the vale, scattered over the hill-side copses wherever there is shade and shelter sufficient, but, unlike our common species of *Calamintha*, always avoiding open and exposed situations, or where there is not plenty of herbage and undergrowth, in which respects it resembles *Melittis Melissophyllum*, a plant which, though frequent immediately on crossing the Solent to the main land of Hampshire, I have hitherto been unable to detect in the Isle of Wight.

Our *Calamintha* is a highly beautiful plant, with flowers of a fine pale rose colour, spotted with purple or even blood-red: the corolla is nearly an inch long, and three times the length of the calyx. Besides the vastly larger size of the flowers and leaves, which last are of a brighter green (pointed and much more closely and acutely serrated) than in the usual form of *C. officinalis*; the whole plant is taller, more slender and much less branched: the stems are lax, ascending or reclining: the cymes (cymose verticils) fewer flowered; the calyx coloured (purple), the teeth of the upper lip strongly recurved: the lower lip of the corolla is very broad, its lobes rounded, the middle one but little exceeding the two lateral ones in length, and separated from them by a very narrow and shallow emargination, hence appearing almost as one undivided lobe. *Calamintha officinalis* is well known as a native of rocky and shady subalpine woods in Switzerland, Carniola, and other parts of the South of Europe, and may well be found with us at a less considerable elevation, being probably one of those plants that, like *Tamus communis*, *Briza minor*, *Gastridium lendigerum*, and other species common here, have a tendency to migrate in a north-westerly direction towards their vanishing point.* No one who has

* This is remarkably the case with the Irish *Ericaceæ* — *Arbutus Unedo*, *Erica*

seen our *Calamintha* in the sequestered woods about Rowledge, can, I think, hesitate to pronounce it truly wild with us ; and I trust this notice of its discovery in the Isle of Wight, will, ere long, lead to its detection in other parts of the kingdom. The flowering period, like that of our commoner species (likewise found in this island), appears to be August and September, perhaps continued into October.

Care must be taken, as I have before mentioned (Phytol. 131), not to confound Apes down with Apse farm and Apse castle, between Shanklin and Newchurch ; the latter probably had its designation from aspen trees, which in Vectian vernacular language are called *apse*.

WM. ARNOLD BROMFIELD.

Ryde, September 1, 1843.

ART. CLXXVIII. — *Varieties*.

380. *Note on the new Cuscuta*. I enclose some specimens of the *Cuscuta*, gathered yesterday in a field of Sir J. M. Adam's near Thaxted, where it has destroyed a considerable quantity of clover, growing in circular patches of from four to twelve feet in diameter, killing the clover in the centre, and then spreading round to an indefinite extent. It does not appear quite to agree with Babington's description, the limb of the corolla being spreading, as in *C. Epithymum*, of which, perhaps, it will only prove a variety. — *G. S. Gibson ; Saffron Walden, August 24, 1843.*

381. *Note on Isnardia palustris*. I may mention that I collected, the last week in August, *Isnardia palustris* in reasonable abundance, in Mr. Borrer's new station at Brockenhurst, though not in flower : the locality brings this rare species within a few miles of our Isle of Wight shores. — *Wm. Arnold Bromfield ; Ryde, September 1, 1843.*

382. *The least troublesome method of drying Plants for the Herbarium*. That the art of drying plants is very little understood by the collecting botanists of this country, is but too well shown by the wretched specimens sent to the Botanical Societies for distribution. Yet nothing is more easy than the making of good specimens, by botanists who have the opportunity of drying plants at home, or at any fixed locality. I have tried various processes, in order to ascertain

mediterranea and *Menziesia polifolia*, whose chief seat is in the Pyrenees and mountains of the Asturias in Spain. I find that *Calamintha grandiflora* occurs in Belgium, according to Lejeune, Fl. de Sp. 2me part. p. 33.

which is the *least troublesome*, consistently with a *good condition* of the specimens when dried, and have at last settled into the custom of putting *an ample quantity of porous paper between the layers of specimens, and not changing it until the specimens have become sufficiently dry to be taken out of press*. Frequent changing of paper, artificial application of heat, previous immersion in boiling water, and other recommended processes, may be very useful in the preservation of particular species; but they must unavoidably increase the personal trouble, and consume the time of the botanist; and that, too, without equivalent advantage in the case of at least ninety in the hundred of our native species. Some practice is requisite to apportion the pressure to the resistance of the paper and plants, and on the success of this will materially depend the beauty of the specimens. If too little pressure be applied, the specimens shrivel, and remain inconveniently brittle. If too much pressure be used, the structure of parts is rendered less fit for after examination, and the colours are destroyed. The quantity of paper to be introduced between the layers of specimens, will vary according to the nature of the plants and the thickness of the paper itself. In my own practice it ranges from half a quire to many quires of demy grey, common blotting-paper, or thick filtering-paper: grasses and ferns, for example, requiring much less paper than do the lilies and *Chenopodiums*. The more common faults with botanists, are those of giving too little pressure, and using too small a quantity of paper; so that their specimens are both fragile and bad-coloured. Heavier pressure would prevent fragility,—more paper would preserve the colours. I do not recommend my own custom as being productive of superexcellent specimens, but as productive of sufficiently good specimens at the smallest cost of time and trouble to the botanist. And I cannot hesitate to add, after seeing the specimens of scores of other botanists, that those dried by my simple and time-saving process, are considerably above the average in quality, as regards both the preservation of colour, and fitness for fastening on white paper. In illustration, I have used the freedom to address to the Editor, a packet of specimens dried in 1841 and 1843, without any change of papers. They will show that the colours of the *Orchis*, primrose, cowslip, many blue flowers, and other plants which usually fail in this respect, may be well enough preserved without any greater trouble than that of putting the plants into paper when fresh, and taking them out when dried.—*Hewett C. Watson; Thames Ditton, September 15, 1848.*

[The beautiful condition of the plants kindly forwarded by Mr. Watson, fully proves, what indeed we never doubted, the perfect adaptation of his plan to the preservation of botanical specimens. Unfortunately, however, it is only when stationary, either at home or in some fixed locality, that the botanist can avail himself of this method, unless he travel with a horse and cart, and a shop-full of paper, as we believe some of the Edinburgh parties are in the habit of doing in their summer excursions. The poor pedestrian, with his comparatively scanty stock of paper strapped over his shoulders, must dry it whenever he can find an opportunity of doing so; and these opportunities, as we have known to our sorrow, are often "few and far between," and sometimes do not occur until the plants collected on previous days are, so far as their *beauty* is concerned, completely spoiled. Among the specimens sent by Mr. Watson, the whole of which are excellent, we were particularly pleased with the following: — *Linum angustifolium*, *Cerasus avium* and *austera*, *Orchis mascula*, *Euphorbia amygdaloides* (a splendid specimen), and several *Primulas*, with the colour of the flower in all, except the Bardfield *P. elatior*, most beautifully preserved. Many of the plants sent were raised from seeds collected in the Azores; several of these, as *Arthrolobium ebracteatum*, *Polycarpon tetraphyllum* and *Lotus angustissimus*, appear to be identical with British species. We can specify no more than the above very small number of the *good things* contained in Mr. Watson's packet, for which we beg him to accept our best thanks.—*Ed.*]

383. *Shetland locality for Cynosurus echinatus.* It will perhaps interest the readers of 'The Phytologist,' to know that I have this year re-found *Cynosurus echinatus* in Bressa, Shetland, about a hundred yards from where I found it in 1840. I obtained only three rather small specimens; but this fact proves the perseverance of the plant in the locality, and shows the propriety of reckoning it in the Scottish Flora. If such a request be not considered presumptuous, might I mention, through the medium of your pages, that if any of your correspondents could furnish me with even the *loan* of a *South of England* specimen of *C. echinatus*, it would be conferring a great obligation on me. The Shetland specimens, both those collected at first and also now, differ much from my foreign specimens; the latter are admirably and characteristically figured in Parnell's beautiful 'Grasses of Scotland.' They differ from the Shetland form in having a much more *dense roundish* spike, which is covered with a somewhat hoary pubescence, totally absent from the Shetland specimens. I should much like to see an English specimen of this interesting grass, to ascertain which form my plant agrees with. — *Thos. Edmonston, jun.; Baltasound, Shetland, September, 1843.*

[Among the plants mentioned in the following communication by Mr. Gibson, as having been collected by himself in the Vale of Calder, is *Cynosurus echinatus*. We have no doubt that Mr. Gibson will feel pleasure in complying with Mr. Edmonston's request; we also should be much gratified by the receipt of a specimen from each of the localities discovered by these gentlemen.—*Ed.*]

384. *Plants observed in the Vale of Calder.* Yesterday afternoon I had a ramble in the vale of the Calder, between Brighthouse and Sowerby bridge, a distance of about five miles. The following is a list of the rarer plants which I gathered; if you think it will be interesting to any of your readers, it is at your service. *Lolium temulentum*, arvense and multiflorum;—the last plant I found with from two to sixteen flowers. *Bromus secalinus*, var. *stricta*; the spikelets of this plant are always upright, not drooping, as in the common state. *Bromus arvensis*; this I found in three different places; it appears to be not very uncommon in that part. *Cynosurus echinatus*, *Myosotis collina*, *Erysimum cheiranthoides*, and *Asperula arvensis*. — *Samuel Gibson; Hebden Bridge, September 21, 1843.*

385. *Description of Aspidium recurvum.** The announcement of a new edition of your 'British Ferns' induces me to trouble you with a remark, for which you may perhaps find room in 'The Phytologist.' In the 4th vol. of the 'Magazine of Natural History,' under the head of "List of Rare Plants found in the neighbourhood of Penzance" (p. 162), I mentioned, among other things, *Aspidium dilatatum*, var. *recurvum*, not knowing how else to designate what I believed to be an undescribed British fern; and in a note at the foot of the page I expressed an opinion to that effect. Since the publication of that list, the fern has been noticed by several botanists, and recorded by yourself as a variety of *dilatatum*. I am perfectly aware that *dilatatum* is a most variable species, assuming as it does very different appearances according to soil, situation, shade, moisture, &c. *Recurvum* is equally given (if I may so say) to "ring the changes" on variety, but to a practised eye it is in all its forms readily distinguishable from every form of *dilatatum*. And I now beg to say, that after close observation of the fern in the neighbourhood of Penzance in the year 1817, and on the Irish mountains some years previously, as well as from an intimate acquaintance with the plant in a cultivated state from that time to the present, I am confirmed in my original opinion, that the fern in question is a species distinct from *dilatatum*; and as such I hope to see it noticed in your forthcoming new edition of 'British Ferns.' I may add, that in the above opinion I am borne out by that of the late Mr. James Dickson—no mean authority on such a subject—and by that of Mr. Drummond, formerly curator of the Cork garden. I believe this curled fern is sometimes known among botanists by the name of *Aspidium spinulosum*; and, for all I know to the con-

* In a letter to E. Newman.

trary, it may be identical with the spinulosum of *continental* writers ; but on that point I do not mean to express any opinion, being quite ignorant what the *A. spinulosum* of the continent is. But the fact is worth recording, and it may save botanists some trouble and perplexity to state, that the application of the specific name of spinulosum to a *British* fern—(first adopted, I believe, by Smith and Sowerby in 'English Botany') originated in error; the fern so named and figured in 'English Botany' being nothing more than a young or starved specimen of *A. dilatatum*, as I was informed many years ago by Mr. Mac-kay, who supplied the very specimen described and figured in that work. The fern called spinulosum by the late James Dickson, is quite different from recurvum, and is, I believe, generally considered as a small variety of dilatatum, although from the large form of the latter species it appears, at first sight, to be abundantly distinct, and ought, I think, to be so regarded. I admit, however, that there do occur intermediate forms or varieties — "connecting links" they may be called — which, if dilatatum and spinulosum (Dickson) are regarded as *two species*, render it extremely difficult to draw the line of demarcation between them, and to say where the one ends and the other begins.— *W. T. Bree ; Allesley Rectory, September 19, 1843.*

386. *Locality for Epimedium alpinum near Bristol.* About fourteen years ago, when in company with other gentlemen on a botanizing excursion, I gathered *Epimedium alpinum* in Leigh wood, near Bristol. At the time I made no note of the exact spot where the plant grew, and circumstances removed me from Bristol soon afterwards, when the pursuit of the science was interrupted for a long interval; but it was in the northern division of the wood, belonging to P. J. Miles, Esq., that the plants were found. Leigh wood is there coppice, which is cut in portions in rotation; and it is probable exposure to sun and air may have destroyed the *Epimedium* for a time, and that it will re-appear as the coppice again grows and affords suitable shade. Since the period before mentioned I have not gathered a single specimen, but as the wood is a large tract, I may not have investigated the spot where the plant was originally found. A specimen gathered by myself is extant in the herbarium of G. Rogers, Esq., of Bristol. I cannot guess how the *Epimedium* was introduced into Leigh wood, which is natural coppice; yet Mr. Babington considers the plant to have but slender claims to be ranked as a native. Be this as it may, the present is the most southern habitat for this interesting plant, which has, up to this time, been considered as entirely

confined to the northern counties.—*Henry Oxley Stephens*; 78, *Old Market St., Bristol, September 29, 1843.*

387. *Note on the Weymouth locality of Vicia lævigata.* In reference to Mr. G. S. Gibson's list of the rarer plants observed by him at Weymouth during the present year (Phytol. 735), I beg leave to state that I was staying at Weymouth for a month in the autumn of the year 1837, and that I then most carefully examined the coast and Chesil bank for miles, in search of *Vicia lævigata*, but was wholly unsuccessful. I am perfectly satisfied that it does not now exist in that locality. I found most of the plants mentioned in Mr. Gibson's list, and also *Vicia bithynica* in hedges on the east side of the Backwater, but sparingly. *Lathyrus Nissolia*, *Polycarpon tetraphyllum* &c. were not found by me.—*A. Bloxam*; *Tweycross, October, 1843.*

388. *Surrey localities for Linaria spartea and Senebiera didyma.* About a month ago I observed numerous plants of *Linaria spartea* extending over a space of four hundred square yards, in a stubble field opposite the Walton station-house, on the south-western railway. Though the plants had been cut down with the corn, many of them still produced flowering-branches from the lower part of the stems, and five hundred specimens might have been collected. This ground was part of Walton heath before the formation of the railway, but has since been inclosed and brought under cultivation. I had not previously been on the exact spot where the *Linaria* was found, although I had crossed the heath on different occasions while the railway was in progress, without having observed any specimens of the plant; and I should deem it highly probable that the seeds had been introduced by some means within the last three or four years. *Senebiera didyma* was found at West end, near Esher, by the side of the road which runs from Esher bridge to the Portsmouth road, on Winter downs; there were a score or two plants of it, on a spot where I had seen garden refuse thrown a few years ago, and where I feel very confident the plant in question did not grow before the year 1840. Both these species are likely enough to maintain their ground by seed, and on this account it appears desirable to put on record their appearance (probably quite recent) in these localities. Three plants of the garden form of *Hyoscyamus niger* (?) with a clear yellow flower, destitute of black lines, were growing with the *Senebiera*. I should add that the *Linaria* is the ornamental plant cultivated in gardens under the name of *Antirrhinum sparteum*; but whether or not it is also identical with *A. junceum*, I cannot say with certainty. — *Hewett C. Watson*; *Thames Ditton, October, 3, 1843.*

389. *Succession Buds in the axilla of a single leaf.* In making a reference to a late No. of 'The Phytologist,' my eye rested accidentally upon Mr. W. Wilson's note on the axillary buds of the common locust-tree (Phytol. 613). There is no express statement in that note whether it was the plurality or the concealment of the buds that was deemed deserving of particular record; but the language and note of admiration ("when lo! instead of a solitary bud, no less than three were contained in the hollow base of each petiole") would seem to imply the former. Several garden plants produce a succession of buds from the axilla of the same leaf. Some of the Fuchsias, for example, first produce a flower-bud from the axilla, and afterwards a leaf-bud develops into a shoot immediately above the peduncle of a flower; and above the base of this young shoot, in turn, the rudiment of another branch or leaf-bud may be observed. So, also, two buds are produced for successive development into branches, at the axilla of a single leaf of *Lophospermum erubescens*. In the vine, two buds are produced, side by side, in the axilla of a leaf; one of them being commonly, though not invariably, developed into a shoot the first year. As in the case of the locust-tree, the vine also rapidly produces a second shoot from the same part of the stem, after its first shoots have been killed by spring frosts; but perhaps this occurs only at those places where both the buds have remained dormant until the second year.—*Id.*; October 17, 1843.

390. *Leaf-buds produced from Roots.* While on the subject of buds, I may add a note on a statement made in Dr. Lindley's 'Introduction to Botany,' p. 51. It is curious to find, in a work so generally accurate, the statement of "roots being essentially characterized by the absence of buds." Yet it is a very common occurrence for shoots or suckers to be produced from the roots of trees, many yards distant from their stems, and connected with the stems only through the roots from which they grow. In the roots of poplars, common horse-radish, and many other trees and herbs, the tendency to produce suckers is so strong, that they may be rapidly multiplied by cutting their roots into short lengths, which produce suckers and become distinct plants. No doubt suckers are frequently nothing but shoots from the base of the stem, which run some distance underground; but in the cases above mentioned, the sucker grows directly from the true root. Such suckers are buds developed into shoots under ground. I should, however, observe that in another part of the same work, the author in some degree contradicts his first statement, while repeating it; namely, "a root has no leaf-buds, unless indeed, as is sometimes the case,

it has the power of forming adventitious ones." It seems to me, that we might just as correctly apply the term "adventitious" to the runners of a strawberry, as to the suckers from the roots of a poplar: the runner and the sucker are ordinary and natural modes of propagation.

—*Id.*

391. *Note on Carex distans.* I trust you will allow me to assure Mr. Wilson, that when I make any enquiry, *it is for the purpose of gaining information*, (Phytol. 746). I do know that the stalk (*scapus*) is that part of a plant which elevates and supports the flower; and I should expect that by the words "barren stalk" is meant that part of the stem which lies between the uppermost fertile spike and the bottom of the barren one; but after allowing this, I am at a loss to know what is to be understood by the sheathing bractees of these stalks. I am also at a loss to know the meaning of remodelling the specific characters of our Carices; for if they have been once accurately described, I see no occasion for their characters being remodelled: but it appears to me that Mr. Wilson has always found himself at fault in making out the difference between *Carex distans* and *C. binervis* (see 'British Flora,' ed. 1, p. 396, and ed. 5, p. 430). I do not pretend to have any superior skill in discriminating our Carices, but I will say that *Carex distans* may always be known from *C. binervis* by the form of the nut; as see Mr. Leighton's *very correct* outline figures of that part. If I were to remodel the description of *C. distans*, it would stand as follows. I should first place it in a section with *C. flava* and *pulla*. I make this arrangement, because the stigmas in these three plants are so variable, *C. pulla* having from two to three, *flava* from two to four, and *distans* from three to five. *CAREX distans*. I.—Barren spike solitary, with obtuse scales. Fertile spikes from two to four (rarely five), erect, with the peduncles inclosed about half way up by the sheathing bases of the foliaceous bractees; ligula opposite the leaves, blunt. Perigynium oval, suddenly contracted and forming a narrow bifid beak, which is often toothed on its edges, ribbed, ribs equal, seven on each side, two on the margins: nut oblong, elliptical, *equally attenuated at each end*, the number of angles is from three to five, depending on the number of stigmas. This will be found somewhat at variance with Mr. Babington's description of *C. distans*, the reason of which is that Mr. Babington has referred a plant to that species which I consider distinct. It differs from *C. distans* in having its perigynium much larger and much less distinctly ribbed, and not suddenly contracted, but regularly tapering to the bifid point. The glumes of the fertile spikes in this plant are only about half the

length of the perigynium: the fertile spikes are much shorter than in *C. distans*, and their peduncles quite inclosed in the sheaths of their bracteas. This form grows inland on dry ground, as at Jackdaw crags, near Tadcaster, &c. Perhaps it will be said by some that the occurrence of four stigmas in *Carex distans* is accidental; in reply to this I would say that to me it appears not to be accidental, since I have the plant from several localities, in three different counties, and all the specimens have more or less of the perigynia in every one of the fertile spikes possessing four stigmas; though it has been stated by a person who thinks himself no tyro among the Carices, that such a thing could not be in *nature*, as a *Carex* with four stigmas and a four-angled nut. The specimen I now inclose is from Wallazey pool, Cheshire; perhaps you will tell your readers how many stigmas it has.* I will conclude this note by saying, in reply to Mr. Wilson, that the passage alluded to (Phytol. 680) is somewhat obscure to me; and as I know nothing of any *fountain-head*, I shall feel obliged by an explanation.—*Samuel Gibson; Hebden Bridge, October, 1843.*

392. *Note on a new British Carex.* While on the subject of Carices, perhaps I may be allowed to offer some remarks on a few other species of that genus. The first I wish to notice is the plant which I mentioned some time ago (Phytol. 366), as a form of *C. teretiuscula*, with fruit as in *paniculata*. In August, 1842, this plant was given to me for *Carex teretiuscula*; in June, 1843, I had the same plant sent from Manchester under the name of *C. paradoxa*: since that time I have examined the plant with great care, and my opinion now is that it is not a state of either of those species. For my own convenience I propose the following name: — *CAREX Pseudo-paradoxa*. Spikes panicled, branches approximate: perigynium ovate, gibbous, acuminate into a serrulate bidentate beak, more or less plano-convex, with seven nerves on the convex side (three very slender in the middle and two strong ones on each side of them), the outer nerves, or those nearest the margins, being very short; nut rhomboidal, narrowing from below the middle; style enlarged at the base: stem three-angled, angles rough on the upper part: leaves narrow, rough on their edges. This plant differs from *C. teretiuscula* in having its spike more distinctly panicled, in its nut being narrowed upwards from be-

* On examination of the specimen above alluded to, we find that many of the fertile florets have four stigmas, as Mr. Gibson has correctly observed. We have taken the liberty of omitting some remarks on the fifth edition of the 'British Flora,' since they are scarcely relevant to the question under consideration.—*Ed.*

low the middle, and in its style being thickened at the base: in *C. teretiuscula* the style is not thickened at the base, and the nut is pyriform, narrowing downwards from above the middle. This plant grows in the neighbourhood of Manchester, but I am sorry to say I cannot give the exact locality, *as that is a secret*. The same plant grows plentifully by the sides of Malham tarn, near Settle, in Yorkshire. It is nearly allied to *C. paradoxa*, which grows in Islington fields, near York, and is accurately described by Mr. Babington in his 'Manual,' (p. 337). *C. paradoxa* may at once be distinguished from this plant by its perigynium, which is more gibbous, and has about nine nerves on the convex side and seven on the other.—*Id.*

393. *Note on Carex boenninghausiana and C. axillaris.* The next I would notice are *Carex axillaris* and *C. boenninghausiana*; see Babington's 'Manual' (p. 339), Mr. Luxford's note (Phytol. 650), and Mr. Edmonston's list of Edinburgh plants (*Id.* 407 and 522). This will, I think, be some excuse for my enquiry (Phytol. 263); and perhaps, after all, *C. axillaris* may turn out to be a much rarer plant than was suspected. The following short description I drew up from one of the specimens referred to by Mr. Luxford, while in my possession; since that time Mr. Luxford has been kind enough to give me one of those specimens. *CAREX* —? Spike three inches long; spikelets ten in number, the two lowest compound and about an inch asunder, the remaining eight regularly decreasing in distance: lower bractea with a narrow ligula passing round the stem: leaves flat, about one-eighth of an inch in breadth, sheathing the stem at their base: stem eighteen inches high, with three rough angles: perigynium ovate, acuminate, serrulate nearly to the base, and very slightly bifid at the point: calyx-scales brown, with one strong nervure, more or less discontinued below the point, which has broadly membranaceous edges. The specimen is from Crichton castle, near Edinburgh, one of the stations given by Sir Wm. Hooker for *C. axillaris*. I have other specimens of the same plant from Borthwick castle, near Edinburgh, gathered by Mr. Ainley of Bingley; and others from the same locality. I have also two fine specimens of this plant, which were given to me in 1834, without any name, but marked "Putney, near London;" this also is one of the stations given for *C. axillaris*. Perhaps many of the stations that are given for *C. axillaris* would turn out to belong to this plant, if carefully examined. The true *C. axillaris* I have from the Edinburgh Botanic Garden, and from Southampton, and other from Over in Cheshire.—*Id.*

394. *Note on Carex muricata.* The last *Carex* I shall notice

present is *C. muricata*, as we have two very different plants passing under this name. One of them grows in bogs and other like places, and has a fruit like Mr. Leighton's figure, marked Pentland hills; the other form grows on dry ground, and is a much more slender plant, with narrower leaves, and a fruit more like Leighton's fig. β . As these two forms do not well agree, it would perhaps be more convenient to separate them, the smaller form being the same as the *Carex Hookeriana* of the American botanists. I think this step the more advisable, as this form will just stand between the larger or *true muricata* and *divulsa*. The first or larger form grows at Weston bog, near Otley, and many other places in Yorkshire. The second or smaller form I have from Reigate, given to me by Mr. Luxford; and from Bingley, by Mr. Ainley. I have other specimens from Scotland and many of the English counties; my American specimens are from Mr. Nuttall. Much might be said on the nomenclature of some others of our Carices, such as the *distans* of Withering, which is the *spirostachya* of Smith, and now the *fulva* of Hooker and others.—*Id.*

395. *Birch Wine*. I have often drank a beautiful wine in this neighbourhood, sparkling like champagne, which is made without sugar, water or spirit, being merely the sap of the birch-tree, boiled with honey and fermented with a little yeast. The birch grows abundantly about Bucklebury near here, so that on the advance of spring these trees are tapped, and a hollow tube inserted into the hole, through which the sparkling sap flows drop by drop into a vessel placed below. Fine weather is, of course, best for this operation. — *William Hewett; East Ilsley, Berks.*

396. *Localities of a few Plants lately observed.*

GLAMORGANSHIRE, (in addition to Mr. Gutch's List, Phytol. 104, &c.)

- | | |
|--|---|
| <i>Lepidium latifolium</i> . Near Neath. | <i>Atriplex littoralis</i> . Swansea. |
| <i>Brassica oleracea</i> . Cliffs near Dunraven. | <i>Schœnus nigricans</i> . Cromlyn bog. |
| <i>Erodium maritimum</i> . Near Swansea. | <i>Scirpus maritimus</i> . About Neath. |
| <i>Oenothera biennis</i> . Near Neath. | <i>Eriophorum polystachion</i> . Cromlyn bog. |
| <i>Spergula nodosa</i> . Near Pennard castle. | <i>Carex extensa</i> . Near Neath. |
| <i>Campanula glomerata</i> . Near Dunraven. | <i>Poa maritima</i> . Ditto. |
| <i>Borago officinalis</i> , (with white flowers).
Near St. Donat's. | <i>Triticum junceum</i> . Ditto, and Cromlyn
burrows. |
| <i>Statice Limonium</i> . Near Neath. | |
| <i>Marrubium vulgare</i> . Near Port Eynon. | <i>Cnicus tuberosus</i> . Between St. Donat's &
Dunraven. I have not heard of any
recorded habitat for this plant, ex-
cept the Wiltshire one; and should
like to know if it has been found
anywhere else in England or Wales. |
| <i>Orobanche barbata</i> . Oystermouth castle
ruins. | |
| <i>Ruscus aculeatus</i> . Shore of Oxwich bay,
near Pennard castle. | |
| <i>Rumex Hydrolapathum</i> . Cromlyn bog. | |

RADNORSHIRE.

NEAR CLYRO.

<i>Circea alpina</i>	<i>Paris quadrifolia</i>	<i>Hypericum Androsæmum</i>
<i>Myosotis repens</i>	<i>Campanula latifolia</i>	pulchrum, &c.
<i>Eriophorum pubescens</i>	<i>Hypericum dubium</i>	<i>Mentha sylvestris</i>

RHOS GOCH, NEAR CLYRO.

<i>Narthecium ossifragum</i>	<i>Littorella lacustris</i>	<i>Eriophorum polystachion</i>
<i>Menyanthes trifoliata</i>	<i>Genista anglica</i>	angustifolium
<i>Comarum palustre</i>	<i>Sison inundatum</i>	vaginatum
<i>Veronica scutellata</i>	<i>Orchis latifolia</i>	

Meconopsis cambrica. Craig Pwll Dhu.

Viola lutea. Hills near ditto.

Trollius europæus and *Epipactis latifolia.*

Near ditto.

Manchita erecta. Hills near ditto.

Sedum Forsterianum and *Saxifraga hypnoides.* Near Water-break-its-neck.

Epilobium palustre, *Ranunculus Lingua*,

Littorella lacustris and *Nymphaea alba.* Llanbychllyn pool, near Craig Pwll Dhu.

Sedum anglicum. Rocks near ditto.

Lemania fluviatilis & *torulosa.* On stones in the stream at Water-break-its-neck and Craig Pwll Dhu.

BRECKNOCKSHIRE.

Cerasus Padus. Hedges about Chapel y Fin and Llanthony. *Gnaphalium dioicum.* Near the Cil hepste falls.

Saxifraga hypnoides and *Vaccinium Vitis-Idæa.* Black mountains. *Margaritaceum.* Near Pont Nedd Fychan.

Cnicus pratensis, *Hieracium umbellatum* *Habenaria viridis.* Ditto.

and *Narthecium ossifragum.* Near *Geum rivale.* Falls of the Mellte.

Ystrad Felltre.

HEREFORDSHIRE.

Hesperis matronalis. Banks of the Lug, near Aymestree. *Melica nutans.* Wynd cliff, near Chepstow.

—*T. Westcombe*; Worcester, October, 1843.

397. *List of Mosses found near Castle-Howard, Yorkshire.* I send for insertion in your valuable journal, a catalogue of mosses found within three miles of Castle-Howard. To be more explicit, however, with regard to the boundaries of the district, I may state that I have confined my observations entirely to those species found on the Earl of Carlisle's estate, the extreme points of which rarely extend beyond the distance specified above. The same remarks will apply to my list of flowering plants (Phytol. 577), where I omitted to mention this important circumstance. The list annexed below is the result of several years' careful investigation, and I think will not only be considered an interesting but a comprehensive one, in proportion to other districts of similar extent. The extensive woods, many varieties of soil, &c. may however, with some degree of probability, be taken into consideration, as circumstances favourable for the growth of this

of plants. I have affixed a cipher to those species which I have not yet detected in a state of fructification.

<i>Anomodon curtipendulum</i>	<i>Hypnum aduncum</i>	<i>Hypnum triquetrum</i>
<i>viticulosum</i>	<i>albicans</i> 0	<i>undulatum</i>
<i>Bartramia arcuata</i>	<i>alopecurum</i>	<i>velutinum</i>
<i>fontana</i>	<i>Blandovii</i>	<i>Leucodon sciuroides</i> 0
<i>Bryum affine</i>	<i>brevirostre</i>	<i>Neckera crispa</i> 0
<i>albicans</i> 0	<i>commutatum</i>	<i>pumila</i>
<i>argenteum</i>	<i>complanatum</i>	<i>Orthotrichum affine</i>
<i>cæspititium</i>	<i>confertum</i>	<i>anomalum</i>
<i>capillare</i>	<i>cordifolium</i> 0	<i>crispum</i>
<i>carneum</i>	<i>crassinervium</i>	<i>cupulatum</i>
<i>hornum</i>	<i>cupressiforme</i>	<i>diaphanum</i>
<i>ligulatum</i>	<i>curvatum</i>	<i>pulchellum</i>
<i>marginatum</i>	<i>cuspidatum</i>	<i>striatum</i>
<i>nutans</i>	<i>dendroides</i>	<i>Phascum bryoides</i>
<i>palustre</i>	<i>denticulatum</i>	<i>cuspidatum</i>
<i>punctatum</i>	<i>filicinum</i>	<i>subulatum</i>
<i>roseum</i> 0	<i>fluitans</i> 0	<i>Polytrichum aloides</i>
<i>rostratum</i>	<i>loreum</i>	<i>commune</i>
<i>squarrosum</i> 0	<i>lutescens</i>	<i>juniperinum</i>
<i>ventricosum</i>	<i>medium</i>	<i>nanum</i>
<i>Daltonia heteromalla</i>	<i>molluscum</i>	<i>piliferum</i>
<i>Dicranum adiantoides</i>	<i>multiflorum</i>	<i>undulatum</i>
<i>bryoides</i>	<i>murale</i>	<i>urnigerum</i>
<i>cerviculatum</i>	<i>mysuroides</i>	<i>Sphagnum acutifolium</i>
<i>flexuosum</i>	<i>nitens</i>	<i>cuspidatum</i> 0
<i>glaucum</i> 0	<i>palustre</i>	<i>obtusifolium</i>
<i>heteromallum</i>	<i>piliferum</i>	<i>squarrosum</i>
<i>scoparium</i>	<i>polymorphum</i> 0	<i>Splachnum ampullaceum</i>
<i>taxifolium</i>	<i>populeum</i>	<i>Tetraphis pellucida</i>
<i>varium</i>	<i>prælongum</i>	<i>Tortula convoluta</i>
<i>Didymodon flexicaulis</i> 0	<i>proliferum</i>	<i>fallax</i>
<i>heteromallus</i>	<i>purum</i>	<i>muralis</i>
<i>purpureus</i>	<i>ruscifolium</i>	<i>rigida</i>
<i>rigidulus</i>	<i>rutabulum</i>	<i>ruralis</i>
<i>Encalypta streptocarpa</i> 0	<i>salebrosum</i> 0	<i>subulata</i>
<i>vulgaris</i>	<i>Schreberi</i> 0	<i>tortuosa</i> 0
<i>Fontinalis antepyretica</i> 0	<i>scorpioides</i> 0	<i>unguiculata</i>
<i>Fumaria hygrometrica</i>	<i>sericeum</i>	<i>Trichostomum lanuginosum</i>
<i>Grimmia apocarpa</i>	<i>serpens</i>	<i>Weissia cirrata</i>
<i>pulvinata</i>	<i>splendens</i>	<i>contraversa</i>
<i>Gymnostomum fasciculare</i>	<i>squarrosum</i>	<i>curvirostra</i>
<i>ovatum</i>	<i>stellatum</i>	<i>lanceolata</i>
<i>pyriforme</i>	<i>stramineum</i>	<i>recurvata</i>
<i>truncatulum</i>	<i>striatum</i>	<i>trichodes</i>
<i>viridissimum</i>	<i>tenellum</i>	<i>verticillata</i>
<i>Hookeria lucens</i>	<i>trichomanoides</i>	

—H. Ibbotson: *Ganthorpe, near Whitwell, Yorkshire, Oct. 20, 1843.*

398. *Note on the Second Flowering of a Horsechestnut Tree.* There is a fine horsechestnut tree standing in a garden at the corner of the Lyndhurst road, in Peckham. This tree is remarkable for a propensity to blossom early in the spring; it is invariably the earliest in the neighbourhood, both as regards leaves and flowers, and is an object of admiration to our residents, as well as to the gentle race of citizens who disport themselves in our atmosphere on Sundays. This year its leafy and flowery honours were nipped by an untimely frost; they became brown and shrivelled, and the tree remained throughout the summer months a most unsightly object, while its more prudent neighbours were quite uninjured. In September new buds made their appearance, sent forth new leaves, and new spikes of beautiful flowers. On the 1st of October the tree was clothed in a robe of bloom, and since then I have daily walked through the fallen flowers which strew the footway beneath its branches.—*Edward Newman: Hanover St., Peckham, October 25, 1843.*

ART. CLXXIX.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF LONDON.

October 6, 1843.—John Reynolds, Esq., Treasurer, in the chair.

Donations to the library were announced from Dr. Goodfellow, Messrs. Quekett, Woodward, and Rich, and the Microscopical Society. British Plants had been received from the President and Miss M. Beever, and a very large collection of East-Indian Plants, many of them collected by Dr. Wight, were presented by the Royal Horticultural Society of Cornwall.

Mr. Adam Gerard exhibited a collection of Fruits and Seeds from Sierra Leone, containing specimens of the fruits of the butter and tallow tree (*Pentadesma butyracea*).

Read, "Notes of a Botanical Excursion to Tilgate Forest in August last," by John Reynolds, Esq., Treasurer.—*G. E. D.*

MICROSCOPICAL SOCIETY OF LONDON.

October 18, 1843.—J. S. Bowerbank, Esq., F.R.S., in the chair.

Read, a paper by Edwin J. Quekett, Esq., on "An Instance of Monstrosity in a Moss." After some observations on the well-known fact that the several organs which constitute the flower and fruit of a plant are only modifications of leaves, and also on the formation of double flowers by the conversion of the parts of reproduction into petals, Mr. Quekett stated that although instances of these changes were extremely common in *flowering* plants, they are but rarely met with among those which are *flowerless*; still, however, they do occur sufficiently often in the latter, to prove that the same law which operates in the former instances, obtains also in some of the higher

orders of flowerless plants, as in the case of certain ferns, in which minute leaves occasionally occupy the position of the sorus, or part appropriated to the organs of reproduction. Professor Lindley, in speaking of the mosses, suggests that the calyptra, the operculum, and peristomium may be nothing more than modifications of leaves; and that even the theca itself may also be the distended apex of the stem. No specimens of mosses, however, illustrating this identity of the organs of reproduction with those of nutrition, appear to have been observed, until Mr. Quekett discovered some which go far to prove that these minute organs are capable, under certain circumstances, of being converted into leaves, thus leaving but little doubt that modifications of leaves are here employed as in ferns and in the higher orders of plants, to constitute the parts concerned in the duty of reproduction.

The specimens were produced in the following manner. Having placed some mosses, with the fructification in different stages of development, in one of the close-glazed cases introduced by Mr. Ward, the author found that one of them (*Tortula fallax*), which, when it was placed in the box, exhibited every tendency to produce fruit, after a time lost every appearance of fruit advancing to maturation, a small tuft of leaves appearing in its place. Upon examining the plant under the microscope, it was evident that it was furnished with the usual leaves at the base. The seta existed of the usual brown colour, quite destitute of leaves; but in the place of the capsule, there was a continued elongation of the seta, of a green colour, bearing several leaves, which were also green, and varying in number from twelve to sixteen; and the author considers it probable, that the elements of the modified leaves, which otherwise would have formed the capsule and peristome, had been so influenced and changed by the heat and moisture of the situation in which they had been placed, as to bring them into a state fitted apparently for the purposes of nutrition only, and not of reproduction. This change he supposes to have been effected by the elongation of the columella, and the consequent carrying up of those leaves whose apices would, in the natural state, have formed the peristome. This variation from the ordinary structure of the parts of reproduction in a moss, appears, in his opinion, fully to bear out the observations of Professor Lindley before referred to, as to the identity of the calyptra, the operculum and the peristome with ordinary leaves: but it is not so clear that the theca is to be considered as the hollowed out apex of the stem. On the contrary, Mr. Quekett's opinion was, that it is formed by the united edges of the carpellary leaves; and he concluded by adducing some instances in other plants in corroboration of this supposition.

Mr. Varley exhibited and described a new form of microscope, which was said to possess all the contrivances found requisite for any instrument; and that many of the defects of other forms had been more or less obviated. The principal novelty in this microscope was a stage composed of one plate, being made to move on the surface of a fixed plate by means of a lever: this arrangement being admirably adapted to watch the movements of living creatures when submitted to magnifying powers. To effect this object, Mr. Varley had the moveable plate connected with the fixed one by guides furnished with ball and socket joints, which allowed it a perfect freedom of motion in all directions, of a smooth and uniform character. Considerable ingenuity was displayed in the several contrivances of this microscope, which was capable of having Mr. Varley's Graphic Telescope applied, for the drawing of objects in the field of the microscope.—*J. W.*

THE PHYTOLOGIST.

No. XXXI.

DECEMBER, MDCCCXLIII.

PRICE 1s.

ART. CLXXX. — *Notes of a Botanical Excursion in France, in the Summer of 1843.* By JOSEPH WOODS, Esq., F.L.S.

My friend Mr. Janson and myself crossed from Brighton to Dieppe on the 13th of May, 1843. On the following day we walked to Arques, about four miles distant, where there are the ruins of a noble old castle, and a fine fragment of a church. We walked along the valley and returned over the hills, without much botanical success. *Mespilus germanica* and *Chærophyllum sativum* occur near houses, and are perhaps neither of them truly wild. *Arenaria tenuifolia*, *Erodium moschatum* (in the village of Arques), *Sambucus Ebulus* and *Fedia carinata*, were the only plants that would be considered at all rare in England. The latter is much more common on this side of the water than *olitoria*, which perhaps is a little later in its time of flowering. The chalk peeps out here and there on the slopes of the hills, but is generally covered with a thick layer of clay and flint, or with some of the beds of the plastic clay.*

In the 'Flore de la Normandie' *Pisum maritimum*, *Sedum dasyphyllum* and *Veronica verna*, are said to grow at Dieppe; I saw none of them. Nothing is given at Arques, but the forest, abounding in beech trees, stretches a long way on the crest of the hills opposite to the castle, and ought to furnish something to the botanist. I would hardly recommend him, however, to spend his time at Dieppe, if he meditate a more extensive excursion.

* On returning to Dieppe at the end of August, I crossed the river at Dieppe, and walked by St. Martin to the forest of Arques, returning through Arques. This lengthens the walk, but gives a pleasing variety. We coast at first a salt marsh, but I saw there no rarity. *Cirsium oleraceum* grows at St. Martin. On the chalky banks at the edge of the forest, and also at Arques, I observed, very unexpectedly, *Parnassia palustris*. A Gentian, which I at first took for a large-flowered variety of *Gentiana Amarella*, but which I now believe is *G. germanica*, grows on the chalk, *G. campestris* on the plastic clay. *Daucus hispida* of DeCandolle is common, but it is the same plant which we find on the chalky coasts of Kent and Sussex. The vegetation about Dieppe is very like that of the opposite coast, and has none of the plants which give so marked a difference to the Botany of the neighbourhood of Paris.

On the 15th we proceeded to Rouen by a diligence, which took us there in four hours and a half: some years ago this journey occupied seven hours. The rain almost confined us to the city for that and the two following days. *Bromus tectorum* and *Linaria supina* are common on the walls, and on the slopes of the hills there is abundance of *Sesleria cærulea*. It is curious to see a plant which is common on the limestone of the north of England, but which does not occur on our chalk hills, so plentiful in such a situation. *Barkhausia taraxacifolia* is plentiful on the hill meadows. Two forms of *Polygala* occur on these hills; one, which is the *P. amara* of the 'Flore de la Normandie,' *P. amarella* of Cosson et Germain, 'Plantes Critiques des Environs de Paris,' forms a rosette of larger leaves at the base of the flowering branch. This rosette, however, consists only in an approximation of a certain number of the leaves, and takes place in a greater or less degree, so that we sometimes find it difficult to decide whether it exists or not.

On the 18th Mr. Janson was obliged to leave me, and I walked, after his departure, to the woods and chalky banks beyond Canteleu. The forest of Roumare here stretches over the wide summit of a range of hills, generally on a soil of flint and clay; and offered to me *Mespilus germanica*, *Monotropa Hypopitys*, *Colchicum officinale*, *Melittis Melissophyllum*, *Convallaria multiflora* and *Viola lactea*. On the immediate crest of the hills, where the soil is almost wholly composed of flints, I observed *Cornus mascula*, *Prunus Mahaleb*, *Aquilegia vulgaris*, *Helleborus foetidus* and *Convallaria Polygonatum*. Upon the rough chalky banks below the wood, grow *Verbascum Blattaria*, *Teucrium Chamædrys* and *Veronica Teucrium*, whose compact masses of bright blue flowers render it a much more conspicuous plant than *V. Chamædrys*. Here also we meet with *Anemone Pulsatilla*, *Euphorbia Gerardiana*, *Globularia communis*, *Satyrium hircinum* and *Orchis fusca*. I had expected to find several of the Orchises allied to this latter species in the neighbourhood of Rouen, and I was desirous of observing the variations in the form of the lip; in this walk, however, I met only with *O. fusca*, and that but in one spot. They appear to grow in patches of small extent, which are scattered here and there in or below the woods, and a botanist who does not hit exactly upon the place, may be within a hundred yards of a considerable number of them without being aware of it. I have given (Phytol 789) an outline of the three principal forms which occurred to me, in the lip of *Orchis fusca*; the narrowest I believe to be the *O. militaris*, and *O. galeata*

of the Parisian botanists; Koch's *O. militaris* is probably the same as that of the 'Suppl. to Eng. Bot.' t. 2675. *O. variegata* has been said to have been found near Rouen, but this appears to be erroneous. Other plants which I observed in this walk were *Lithospermum purpureo-cæruleum*, in a lane below the church at Canteleu; *Fedia carinata*, *Linaria supina*, *Bromus tectorum* and *Geranium rotundifolium*, almost everywhere. *Sedum album* was not unfrequent on the walls, and *Aristolochia Clematitis* by the side of the lower road from Rouen to Canteleu. In all this walk the scenery is delightful, commanding the valley of the Seine, and a rich variety of wood and cultivation,—fertile plains, and steep and broken banks, and the Seine winding among them and giving life and spirit to the whole.

On the 19th I went in an omnibus to Darnethal, a manufacturing town about a league from Rouen. These omnibuses, or *gondoles* as they are here called, run every half hour. Two valleys unite at the lower part of the town; I took that to the right, and then ascended the hills on the left, where, on some rough uncultivated ground below the woods, I had on a former occasion, in company with my friend T. Corbyn Janson, found abundance of *Orchis odoratissima*. It is a late *Orchis*, closely resembling *O. conopsea* in its general appearance, and this time I failed to identify it. Hereabouts, too, I think we found *Stachys alpina*: *Anemone Pulsatilla* and *Stachys recta* are very abundant. *Tilia parvifolia*, *Pyrus torminalis* and *Mespilus germanica* are found in the woods, but the two latter seem rather shy of flowering. *Luzula Forsteri* grows here, almost to the exclusion of *L. pilosa*; *Phyteuma spicatum* and *Convallaria majalis* are in considerable abundance. Passing through these woods, and a cultivated tract through which runs the road to Gournay, I again entered the forests, and, in a hollow, found a large plot of intermixed *Orchis fusca* and *O. militaris*. When I speak of *O. militaris*, I mean a plant with pale purplish-grey acuminate sepals, like those of *O. Simia*, but with a broader lip, which is always rough with little tufts of short purple hairs. I have sketched (fig. 4, 5, 6, p. 789) some of the lips of the *O. militaris* here found, one of which is very remarkable, as the two upper lobes, the arms of the monkey, are entirely wanting. On the same bank grew *Euphorbia dulcis* and *Cineraria integrifolia*, which here, drawn up in the woods, has an appearance very different from that which it assumes upon the downs of Sussex.

On the recommendation of M. Pouchet, Professor of Botany, I went on Saturday to the hills rising from the Seine above Rouen. I did not go far enough to reach the Rocks of St. Adrien, which are chalk

cliffs, and the station of some very rare plants. The steep slopes in this direction seem to be the driest of any about Rouen, and they are everywhere open and accessible. I here added to my list *Iberis amara*, *Eryngium campestre*, *Caucalis daucoides*, *Ophrys apifera* and *aranifera*, *Orchis viridis* and *Epipactis grandiflora*.

In a little wood on the right hand side of the ascent to Belbœuf, there was a considerable quantity of *Orchis fusca*. *Digitalis lutea* I had seen in the walk at Canteleu, but till I here saw some of the dead flower-stalks of last year, I did not comprehend what it was. *Rosa sepium* is common on the chalky banks: it is very glandular and fragrant, but I could not find any mixture of setæ among the prickles. *Helianthemum marifolium* makes some of the driest banks quite splendid with its brilliant flowers. This is at least the *H. marifolium* of the 'Flore de la Normandie,' but I give it on the authority of Mr. Gay that the French species described under that name is universally *H. canum*, *H. marifolium* being a Spanish plant, which is not found in France, nor perhaps in Italy. *Calendula arvensis* grows on some of the driest slopes — a hint perhaps that the vine would succeed there, as they are almost inseparable companions.

On the 22nd I went to Maromme, but I ought to have proceeded to Malonnaise, where there are some promising banks and woods, and to which place there is an omnibus every morning at 7. The clerks and employés at the manufactories about Rouen reverse the London practice, and after spending the day in the surrounding villages, return to the city to sleep. These omnibuses are numerous at Rouen, and besides a steam-packet for Havre, there is a spacious one for La Bouillé, a few leagues down the Seine, and a smaller one up the river to Paris. We may now add the rail-road, on which the botanist might go to Tourville, and return on foot by the banks and woods of St. Adrien as far as Mivoie, where at 5 o'clock he would find a gondole for Rouen.

There are two or three places down the Seine where there are turf-bogs, and a considerable one near Jumiege is said to be rich in plants; but a wet May is not tempting for bog Botany.

After my walk to Maromme I got on to the railroad at 3 o'clock, and arrived at Mantes at half-past 5.* The hills here are less high

* Vernon would be a better place to stop at, but I did not know this at the time. On my return I did stop there, but I was still lame from the effects of a fall in the forest of Fontainebleau, and could not walk far. However, I managed to ascend the hill of St. Catherine, on the north side of the Seine, where I observed *Teucrium montanum*, *Ononis Columnæ* and *Astragalus monspeliensis*.

and less bold than at Rouen, and the little patches of varied cultivation on their slopes look like strips of carpet. The hills to the north of the river are said to yield the best Botany; I unfortunately took a different direction. I noticed *Melampyrum arvense* and *cristatum*, both now in flower; *Ajuga Chamæpitys* and *genevensis*, *Astragalus glycyphyllos*, *Hypericum montanum*, *Alyssum calycinum*, *Camelina sativa* and *Quercus pubescens* (the segments of the leaves are narrower and deeper than in *Q. sessiliflora*). *Verbascum pulverulentum* and *Salvia pratensis* become now exceedingly common. *Muscari comosum* is also abundant, but *M. racemosum* seems to be already over. *Fumaria Vaillantii*, *Iberis amara*, *Herniaria glabra*, *Thlaspi perfoliatum*, *Triticum Nardus*, *Poa bulbosa*, *Potentilla verna*, *Orchis fusca*, *Ophrys apifera*, and *Prunus Mahaleb* also occur. In the Bois de la Butte verte, besides many plants usually found in a sandy soil, I noticed *Tillæa muscosa*; and in a clayey bottom, hardly more than a

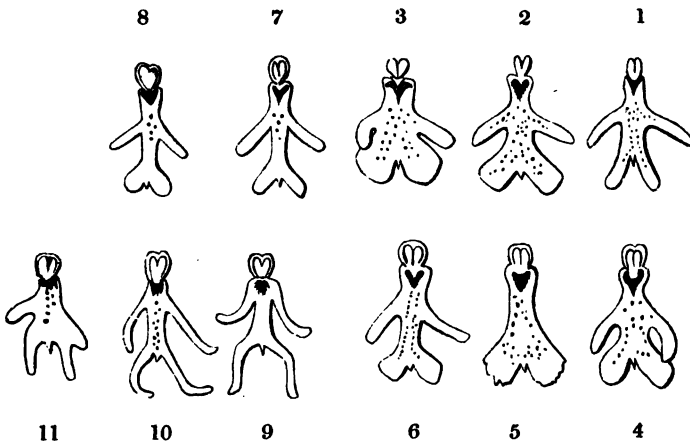


Fig. 1, 2, 3. *Orchis fusca*. Fig. 1 is probably the *O. militaris* and *O. galeata* of the Parisian botanists.
 Fig. 4—8. Different forms of *Orchis militaris*. In fig. 5 the upper lobes of the lip are absent.
 Fig. 9, 10. *Orchis Simia*. Fig. 11. A supposed variety of *O. Simia*.

league from *Mantes*, *Orchis militaris* (fig. 7, 8), and *O. Simia* (fig. 9). Fig. 7 seems to approach the nearest to the figure in 'English Botany,' (t. 2675); *O. tephrosanthos* of that work (t. 1873, the *O. macra* of Lindley), I should say is most like fig. 11 hereafter to be noticed, but

which I am disposed to consider a variety of *O. Simia*. I may here observe that Bicheno refers this figure to *O. militaris*, and not to his *tephrosanthos*. In the specimens of *O. Simia* the lip was in general quite smooth, but in some there were a few small tufts of red hairs at the base. I should characterise the three species thus : —

O. fusca. Sepals rather obtuse, connivent, united at the base. Lip pinnately 4-lobed, with an intermediate point, rough with tufts of red hairs; lower lobes broader and shorter than the upper. Bracts minute.

O. militaris. Sepals acuminate, connivent, united at the base. Lip pinnately 4-lobed, with an intermediate point, *rough with tufts of red hairs*; lower lobes broader and shorter than the upper. Bracts minute.

O. Simia. Sepals acuminate, connivent, united at the base. Lip pinnately 4-lobed, with an intermediate point, *generally quite smooth*; all the lobes linear and similar. Bracts minute.

Lindley, and after him Hooker and Babington, say that the English plant is not the *O. tephrosanthos* of Villars. Villars says of his plant that it is more like *Ophrys anthropophora* than like an *Orchis*, I suppose he means in this comparison to except the spur. I know of no plant to which such an observation would apply, nor can I understand his *Orchis militaris*, where the "thighs" are longer as well as broader than the arms. The three other species of this division of the genus — *O. longibracteata*, *O. undulatifolia* and *O. variegata*, have bracts longer than the germen.

I went from Mantes to Houdan, in hopes of getting a ramble in the forest of Rambouillet, which advances to within a league of that place; but the rain, if it did not absolutely hinder, very much limited my exertions. One does not like to wade mid-leg in the water merely to see whether a place looks promising, though one would not mind doing it for a rare plant in view: even the wet bushes appal us when in a state of uncertainty. My plants were *Knappia minima*, *Agrostis setacea*, *Alopecurus bulbosus*, *Hypochæris glabra*, *Mentha rotundifolia*, *Hieracium Auricula*, *Tragopogon pratense*, with the rays nearly twice as long as the calyx; *Seseli montanum*, *Adonis æstivalis*, *Genista pilosa*, *Scorzonera humilis*, *Myosurus minimus*, *Veronica verna* and *Cirsium anglicum* of DeCandolle; how far *C. bulbosum* and *C. pratensis* of the same author are distinct from this plant, may admit of question.

The accommodations at Houdan (les Trois Fils d'Amon) are not very good, but the greatest defect was the want of attention. I had on my arrival a long while to wait in the kitchen before I could even get an answer to a question, and still longer before I could get my luggage taken up stairs : and when I came away, the servant was, with great difficulty, induced to bring my trunk down stairs, but left it at bottom, with "Voila votre malle, Monsieur," and would not bring it any further.

I had been assured at Mantes that I should find at Houdan conveyances for Rambouillet and for Chartres: I found neither, and therefore took my place in the evening for Dreux. The best hotel — the *Paradis* — was full, and I took up my quarters at the Saumon, which is not bad. The next day, May 25, I walked to the forest of Dreux, which offers some fine chalky banks towards the Eure, but internally is an unproductive plateau. Here again I saw *Orchis fusca*, which is evidently the most common of the tribe ; *O. hircina* was abundant. The other plants were : —

<i>Anchusa italica</i>	<i>Peucedanum Oreoselinum</i>	<i>Silene nutans</i>
<i>Pulmonaria angustifolia</i>	<i>P. parisiense</i>	<i>Holosteum umbellatum</i>
<i>Salvia Sclarea</i>	<i>Isatis tinctoria</i>	<i>Sambucus Ebulus</i>
<i>Orobanche cruenta</i>	<i>Sisymbrium Irio</i>	<i>Gnaphalium arvense</i>
<i>Crepis biennis</i>		

Helianthemum pulverulentum was abundant and in great beauty : this seems to me hardly distinct from *H. apenninum*, nor do I know how to separate it from *H. polifolium*, at least my specimens of *H. polifolium* from Brean down seem in all respects the same plant. After my walk I went to look at the new chapel which the King is now building as a mausoleum for himself and his family. With some beautiful bits of Gothic and a splendid general effect, it is nevertheless the strangest thing which can be imagined, and much more whimsical than beautiful.

At 6 o'clock the next morning I set out for Chartres. Nothing can be more interesting than the magnificent cathedral of that city, or less so than the country about it, especially as I saw it under the influence of a continued mizzling rain. At half past 2 I started for Angerville, where I had to wait at the station nearly two hours for the arrival of the train from Paris, with rain so incessant, and a road so deep in clay that I did not venture into the village. The country all the way from Chartres to Orleans is as dull and monotonous as possible : we traverse for some distance the forest of Orleans.

On the 29th I walked to Ingré and the forest beyond it. The hill

on which Ingré stands is sandy at the base and clayey at top; the stratum of clay contains, in other places, beds of a soft calcareous stone. *Orchis hircina* here grows upon the sand, being less particular, in a warmer climate, in its choice of soil than it is with us or in Normandy. *Thlaspi perfoliatum*, *Holosteum umbellatum* and *Bromus tectorum* are no longer confined to walls and dry banks, but descend into the cultivated land. The other plants were:—

<i>Carum Bulbocastanum</i>	<i>Fumaria parviflora</i>	<i>Hypochoeris maculata</i>
<i>Bupleurum rotundifolium</i>	<i>Campanula Speculum</i>	<i>Artemisia campestris</i>
<i>Neslia paniculata</i>	<i>Dianthus prolifer</i>	<i>Ornithogalum umbellatum</i>
<i>Erysimum orientale</i>	<i>Silene conica</i>	<i>Veronica triphyllos</i>

On the 30th I called by appointment, at 7 o'clock, on M. Jullien, and we set off, accompanied by the premiér garçon of the botanic garden and a lad with him, to St. Cyr en Val. We did not reach the village till near 12, although only about six miles from Orleans; but my companions were not well acquainted with the grasses and Carices, and found fully as much to do as myself. Beyond St. Cyr is a little valley, if so slight a depression may deserve the name, at first presenting barren banks and pieces of woodland, and becoming afterwards boggy; and we passed over heaths and through woods on our return, the country being everywhere nearly flat. Our plants were:—

<i>Madia sativa</i> , the relic of cultivation	<i>Scutellaria hastata</i>	<i>Vicia lutea</i>
<i>Chondrilla juncea</i>	<i>Anarrhinum bellidifolium</i>	<i>Trifolium ochroleucum</i>
<i>Hieracium Auricula</i>	<i>Linaria Pelisseriana</i>	<i>Vicia lathyroides</i>
<i>Lithospermum arvense</i> , flo.	<i>Pinguicula lusitanica</i>	<i>Lupinus tenuifolius</i>
<i>Stachys germanica</i> [roseo	<i>Veronica acinifolia</i>	<i>Lathyrus angulatus</i>
<i>Brassica Cheiranthus</i>	<i>Scleranthus perennis</i>	<i>Aristolochia Clematidis</i>
<i>Turritis glabra</i>	<i>Lobelia urens</i>	<i>Orchis laxiflora</i>
<i>Herniaria hirsuta</i>	<i>Astrocarpus sesamoides</i>	<i>Carex ericetorum</i>
	<i>Helianthemum umbellatum</i>	C. Schreberi

Before returning to Orleans we visited the source of the Loiret; it is a nearly circular basin at the foot of a woody bank, in which the spring boils up with considerable force, and forms at once a river, which, after a quiet course of a few miles, joins the Loire. It is a charming spot, well shaded with fine trees, and breathing sweetness and repose. In this walk (which exceeded twenty miles) the want of ferns in situations apparently very favourable to them, was very striking. We saw only two or three of the most common species, and not many plants of those. This, I apprehend, is the most eastern habitat known for *Pinguicula lusitanica*.

The next day we had a ramble in the forest of Orleans, but besides that we had anticipated many of the plants, the ground in this direction is not so favourable for Botany. We examined a large shallow pond, where the gardener Aubin thought he had found *Carex hordeistichos*, the year before but we sought for it in vain. A curious variety of *Cirsium anglicum*, if it be not rather a species, grows here, the stem being much more leafy than in the usual state of the plant.

Cirsium anglicum is the *Cnicus pratensis* of our British botanists, the latter generic name having been taken from Linnæus, the former from Tournefort; and the name *Cnicus* being thus at liberty, De Candolle has appropriated it to the *Centaurea benedicta*, which was called *Cnicus* by Vaillant, and by Linnæus in the first edition of the 'Species Plantarum.' With regard to the trivial name the matter is more intricate. Linnæus has a *Carduus dissectus* growing in France and England, which is lost if it be not this plant. Hudson consequently called it at first *C. dissectus*, but afterwards adopted the name of *C. pratensis*. *Cirsium anglicum* is a name of Ray, adopted by Lamarck. I will not here attempt to trace the limits or the synonymy of this species, *tuberosum*, *bulbosum* and *pratense* of DeCandolle, observing, however, that if *tuberosum* and *bulbosum* be the same plant, the former name is to be preferred, as the root is strictly tuberous, and not bulbous. Smith says that the root is creeping in *C. tuberosus*, and not in *pratensis*. It is certainly creeping in the plant before us, but I suspect that it is so, more or less, in his *C. pratensis*. We noticed *Euphorbia dulcis*, which I had not seen since I left Rouen, and one or two specimens of *E. Lathyris*; also *Erica scoparia*, *Melampyrum cristatum*, *Arnica montana*, *Inula salicina* and *Festuca heterophylla*: I have not made up my mind as to whether this *F. heterophylla* be the same as our *F. duriuscula*. I have never seen it except in woods, and the slender culms, and numerous, very long, capillary root-leaves give it a very different appearance. *F. duriuscula* of the French botanists is a variety of *F. ovina*.

From Orleans I proceeded in a steam-boat down the Loire to Blois, and on Friday morning, in company with one of my companions in the packet, visited the Chateau de Chambord, a magnificent and very curious palace of Francis I. There are four large round towers at the angles of the principal building, which rather promise some fine apartments within, but they are cut up into little rooms. Heavy rains afterwards prevented all but a short walk to a place on the south side of the Loire, which sometimes receives its overflowings. *Glaucium luteum* has here established itself; and I noticed *Medicago minima*,

Senecio viscosus, *Scrophularia canina*, *Cynoglossum pictum* and *Triticum* Poa.

On the 3rd of June I visited the forest of Blois, but with little success ; it seems to be of a clayey soil, with some mixture of flint, occupying an extended and nearly level hill-top ; yet some of the little streams appeared to be permanent, though greatly swelled by the heavy rains. The large variety of *Monotropa* grows here among the roots of the hornbeam. We also find *Euphorbia stricta* and *esula*, *Linaria striata*, *Crepis pulchra* and *Lamium maculatum*, between the forest and the river. The botanists of Orleans contend that the latter plant is a distinct species, and call it *L. hybridum* : it has larger flowers than the common form, and is altogether a handsomer plant, but I see no specific difference. *Orchis laxiflora* and *hircina* are not uncommon about Blois. Just by Blois, in ascending the Loire, is a steep bushy bank, which is rich in plants, and from the charming views over the valley, would afford a delightful lounge in fine weather. The plants I there observed were : —

<i>Orobanche cœrulea</i>	<i>Potentilla verna</i>	<i>Ornithogalum pyrenaicum</i>
<i>O. epithymum</i>	<i>Micropus erectus</i>	<i>Muscari racemosum</i>
<i>O. amethystea</i>	<i>Valeriana rubra</i>	<i>Ophrys aranifera</i>
<i>Linum tenuifolium</i>	<i>Centrophylum lanatum</i>	<i>Orchis hircina</i>
<i>Prunella laciniata</i>	<i>Medicago orbicularis</i>	<i>Phleum Boehmeri</i>
<i>Stachys recta</i>	<i>Bupleurum aristatum</i>	<i>Ceterach officinarum</i>

I was told at Orleans that I should find a rich harvest in the neighbourhood of Vendome ; — that the ground was *très accidenté*, and abounded in favourable situations. To Vendome therefore I went, in one of the diligences which run every day between that town and Blois ; and after breakfasting at the Hotel de St. Louis, which is an excellent one, set off to find the botanic garden. I was positively assured at the inn that there was neither garden nor Professor ; — there are both. The garden, however, is only a little piece of ground at the back of the college, and the Professor — M. Julliard — was unfortunately at Blois. I did not regret this much at the time : the Professors at these smaller establishments in France, are often men who attend to little beyond the circuit of lectures they have to give, or at any rate who interest themselves but little in the Botany of the neighbourhood ; but I afterwards learned that M. Julliard is a good and zealous botanist, and well acquainted with the plants of the country, — a kind of knowledge particularly valuable to a stranger. From the college I set out to find the gardener, who works at other places as well as at the botanic garden ; and not finding him at home, left word for him to call on me, either at his dinner-hour (2 o'clock), or in the

have gone to Romorantin, and to have spent two or three days there and at Salbris, in the very depths of Sologne. The maps mark a multitude of triangular pools, and in the winter, and even at the time I was there, these exist. A dam is made across one of these hardly-marked valleys, and the water collects there, but in summer you may traverse most of them in any direction without getting wet. *Asphodelus albus* is said to be abundant in some parts, and this is about its most northern station; it is also probably about the most southern station, independent of mountains, for *Myrica Gale*. The plants that I observed were not numerous; besides the two already mentioned, *Sedum* and *Illecebrum*, they were: —

<i>Astrocarpon sesamoides</i>	<i>Arenaria segetalis</i>	<i>Lathyrus angulatus</i>
<i>Tillæa muscosa</i>	<i>Astrolobium ebracteatum</i>	<i>Vicia lutea</i>
<i>Trifolium subterraneum</i>	<i>Avena tenuis</i> ?	<i>Juncus capitatus</i>
<i>Scirpus maritimus</i>	<i>Spergula subulata</i>	

After these excursions I returned to Orleans, whence I made an unproductive trip to the Pont de Segris. Our principal object was to get an *Anchusa*, which M. Jullien supposed to be the *altissima* of Desfontaines: they had a plant of it in the garden. I suspect it will prove a variety of *A. italica*, but we found only the common form of *A. italica* in this station. The almost continued rain was, however, very discouraging. From Orleans I proceeded to Paris.

To keep the form of a journal in the various walks and little trips that I made during a residence of six weeks in Paris and in its neighbourhood, would occasion a number of useless repetitions: I shall therefore begin by giving a list of those plants which are marked with a C (*commun*) variously modified in the Catalogue published by Cosson, Germain and Weddel, but which are rare or unknown in England, and therefore interesting to an English botanist; and thence proceed to state, as far as my experience goes, what more may be expected in various excursions in the neighbourhood.

<i>Anemone Pulsatilla</i> . Sandy hills.	<i>Sisymbrium Irio</i> . Walls and banks.
<i>Adonis æstivalis</i> . Sandy fields.	<i>Erysimum cheiranthoïdes</i> .
<i>Myosurus minimus</i> . Ditto	<i>Brassica Cheiranthus</i> . Sandy woods.
<i>Helleborus fœtidus</i> . Dry banks.	<i>Diplotaxis viminea</i> . Fields.
<i>Nigella arvensis</i> . Sandy fields.	<i>Alyssum calycinum</i> . Dry fields & banks
<i>Delphinium Consolida</i> . Ditto.	<i>Thlaspi perfoliatum</i> . Dry fields.
<i>Fumaria Vaillantii</i> and <i>parviflora</i> . Ditto.	<i>Iberis amara</i> .
<i>Nasturtium officinale</i> , var. <i>β. riifolium</i> .	<i>Lepidium graminifolium</i> .
Ditches ?	<i>Isatis tinctoria</i> . Sandy woods.
————— <i>sylvestre</i> . Sides of the river.	<i>Helianthemum guttatum</i> . Sand.
<i>Barbarea arcuata</i> .	<i>Parnassia palustris</i> . Springy ground.
<i>Turritis glabra</i> . Sandy woods.	<i>Polygala depressa</i> . Ditto.

- Gypsophila muralis*. Sandy fields.
Dianthus prolifer. Everywhere.
 ——— *carthusianorum*. Dry banks.
Silene nutans. Woods.
 ——— *Otites*. Sandy fields.
 ——— *conica*. Everywhere.
Arenaria tenuifolia, *f. viscidula*. Fields.
Holosteum umbellatum. Walls &c.
Linum tenuifolium. Dry slopes.
Malva Alcea.
Hypericum dubium.
Oxalis stricta. Moist cultivation.
Genista sagittalis.
Medicago sativa.
 ——— *falcata*.
 ——— *minima*. Sandy slopes.
 ——— *apiculata*. Fields.
Mellilotus arvensis. Fields and banks.
Trifolium parisiense. Moist meadows.
Tetragonolobus siliquosus. Moist places.
Astragalus glycyphyllos. Woods.
Coronilla varia. Ditto.
Vicia gracilis, *tenuifolia* and *lutea*.
 Fields.
 ——— *lathyroides*. Dry slopes.
Lathyrus Aphaca and *tuberosus*. In
 fields.
Cerasus Mahaleb.
Fragaria elatior. Woods.
Potentilla verna. Dry ground.
Rosa sepium. Ditto.
Sorbus domestica.
Oenothera biennis. Sandy ground.
Lythrum hyssopifolium.
Portulaca oleracea.
Herniaria glabra and *hirsuta*.
Crassula rubens. Dry banks.
Sedum cepæa. Ditto.
 ——— *album*. Banks and walls.
Eryngium campestre.
Bupleurum falcatum.
Oenanthe Lachenalii and *peucedanifolia*.
Seseli montanum.
Selinum caruifolium. Boggy woods.
Peucedanum parisiense & *Oreoselinum*.
 Woods.
Caucalis daucoides. Fields.
Lonicera Xylosteum.
Erigeron canadense. Sandy ground.
Inula britannica. River banks.
 ——— *salicina*. Moist woods.
Filago gallica and *arvensis*. Fields.
Gnaphalium luteo-album.
Artemisia campestris. Sandy ground.
Anthemis arvensis.
Senecio paludosus. Seine and Marne.
Calendula arvensis. Vineyards &c.
Cirsium oleraceum. Moist shade.
Centaurea Jacea. Meadows.
 ——— *lanata*. Dry slopes and banks.
Scorzonera humilis. Moist woods.
Podospermum laciniatum. Banks.
Chondrilla juncea. Ditto.
Lactuca Scariola and *Saligna*. Ditto.
Barkhausia foetida and *taraxacifolia*.
Crepis biennis and *tectorum*.
Hieracium Auricula.
Prismatocarpus Speculum. Fields.
Campanula persicifolia. Woods.
 ——— *Rapunculus*.
Cynanchum vincetoxicum.
Villarsia nymphaeoides. Seine, Marne.
Gentiana Pneumonanthe.
Heliotropium europæum. Dry places.
Echinospermum Lappula. Walls.
Pulmonaria angustifolia. Woods.
Myosotis stricta. Woods.
Solanum nigrum, var. *ochroleucum*.
Physalis Alkekengi.
Lycium barbarum.
Verbascum Schraderi. Banks.
 ——— *pulverulentum*.
 ——— *Blattaria*. Woods.
Linaria stricta and *supina*.
Veronica Teucrium. Sandy woods.
 ——— *spicata*.
 ——— *triphyllus*.
Melampyrum cristatum. Sandy woods.
 ——— *arvense*. Fields.
Rhinanthus glaber?
Orobanche Epithymum, *Galli*, *Eryngii*,
 and *ramosa*. Occasionally.
Mentha rotundifolia. Moist banks.
 ——— *sativa*.
Salvia pratensis.
Melittis Melissophyllum. Woods.

- Fedia carinata* and *auricula*. Fields.
Stachys germanica. Borders.
 ——— *annua*. Fields.
 ——— *recta*.
Leonurus Cardiaca.
Ajuga genevensis. Sandy ground
Teucrium Botrys. Fields.
 ——— *Chamaedrys*. Slopes & banks.
Centunculus minimus. Moist sandy ground.
Statice Plantaginea. Sand.
Plantago arenaria. Ditto.
Amaranthus sylvestris, *Blitum* & *retroflexus*. Waste ground.
Chenopodium glaucum. Ditto.
 ——— *hybridum*.
Atriplex oppositifolia and *hortensis*, *β. microsperma*.
Rumex maritimus
Polygonum mite and *dumetorum*.
Aristolochia Clematidis.
Euphorbia stricta. Fields.
 ——— *dulcis*. Woods.
 ——— *Gerardiana*. Dry woods.
 ——— *Cyparissias*. Banks &c.
Salix hippophaëfolia.
Alisma Damasonium.
Naias major.
Orchis fusca, *Jacq.* Woods.
 ——— *laxiflora*. Moist meadows.
Orchis chlorantha.
Lamium incisum and *maculatum*.
Ophrys aranifera, 6; *arachnites*, 7, 8.
Asparagus officinalis. Sandy woods.
Convallaria Polygonatum and *multiflora*. Woods, 5.
Ornithogalum pyrenaicum. Wdy. slopes.
 ——— *umbellatum*. Fields.
Scilla autumnalis. Sandy woods.
Allium sphaerocephalum.
 ——— *oleraceum*. Cultivated.
Muscari comosum and *racemosum*.
Juncus Tenageia. Moist sandy places.
Cyperus fuscus.
Heleocharis uniglumis and *acicularis*. Marshy edges of ponds.
Carex tomentosa.
Cynodon Dactylon.
Digitaria sanguinalis.
Panicum Crus-galli.
Setaria verticillata and *viridis*.
Phleum Boehmeri.
Knappia minima.
Aira uliginosa, only two places quoted, perhaps the C is an error.
 ——— *canescens*. Sandy banks.
Poa bulbosa.
Bromus arvensis. Banks.
 ——— *tectorum*. Walls and banks.
Chara flexilis and *translucens*.

My first excursion was to Charenton, on the 17th of June, and I visited that place again on the 23rd of July, in company with M. de Jussieu and his party, but in the latter case it was very wet weather. Taking the voiture for Charenton, the botanist will get out at the bridge, and crossing it, will proceed to that over the Seine, which he will not cross. A little above this, on the right bank of the Seine, I gathered *Sisymbrium supinum*, a plant which was much more plentiful formerly than it is at present, the efforts of Parisian botanists having nearly succeeded in destroying it. He will then return and cross the Marne in a boat, just above the bridge, to one of the islands, and ascend the river: here, however, I obtained nothing but *Inula britannica*. On leaving the shore, the bank on the left of the road furnished *Anchusa italica* and *Orobanche amethystea*; but before this the greater part of the company were driven back by the rain. I proceeded

in company with M. Germain and two others, to the plain of La Varenne, a sandy flat forming the extremity of the peninsula of St. Maur, partly woody or waste and partly cultivated. Here we got *Polycnemum arvense* and *Trigonella monspeliaca*. Thence proceeding to St. Maur and entering the Bois de Vincennes, we find on the road to the gate of Nogent, abundance of *Carduus acanthoides* of the French botanists, growing amongst a quantity of *C. nutans* and *C. crispus* (the *acanthoides* of Smith), between which it seems to be a hybrid. In the same neighbourhood, on the side of a road a little more to the right, grow *Brassica Cheiranthus*, *Malva Alcea* and *Verbascum Blattaria*, and, a little further on, *Lathyrus tuberosus*. This part of the wood is very beautiful, commanding views over the valley of the Marne; and it is the only part which is so. Thence, crossing the wood to the gate of Fontenay, we take the road nearest to the wall of the wood leading to Vincennes, where we shall meet with *Scutellaria Columnæ* in abundance, *Silene catholica*, *Cucubalus baccifer* and *Tordylium maximum*. The two first are supposed to have been sown in this locality at some unknown period; and there are two or three other plants which I did not see, believed to be in the same predicament. Here also I observed a plant of *Ranunculus nemorum*, but whether there is more of it I do not know, for having gathered the plant lately in a much better state at Blois, I did not pay much attention to it. This walk, if not very productive of rare plants which are genuine natives, has the advantage of exhibiting a large portion of those which are more common in the vicinity of Paris. The water-side about Charenton, the dry slopes beyond, the sandy plain of La Varennes, and the wood of Vincennes, furnishing all the usual varieties of soil and situation. The botanist will meet with *Senecio paludosus*, *Delphinium Consolida*, *Nigella arvensis*, *Filago arvensis* &c., and later in the year with *Digitariæ*, *Setariæ* &c.

It seems hardly necessary to say anything of my Paris life, yet a few words may not be useless to a brother botanist who visits that city for the first time. I took up my lodgings at the Hotel des Etrangers, Rue Vivienne, where I paid three francs a-day for my room. This I believe is the usual price for a single well-furnished room on the second story or on the entresol, at the respectable inns in Paris. You pay besides for a wax candle, one of which lasted me for a fortnight; and would have to pay for a fire if you wanted one, and you are charged ten sous a-day for the servants. There are no other extras to make up a bill connected with the chamber, and the chambers in Paris are always fitted up as sitting-rooms; the bed occupying one

corner, or sometimes across. If you eat and drink in the hotel, you have a list of prices hung up in your room, so that you may know distinctly all your expenses. The servants usually expect, at least from Englishmen, a small additional present, but I found them well contented when I formed my calculation for this at five sous per day. There is a table d'hôte at half past 5, at four francs; but being not overburthened with money, I did not frequent it, since I could get a dinner which pleased me as well or better for half that sum. I usually went for my breakfast to the Café de la Place des Victoires, where I had one large cup, or perhaps rather basin, of coffee and milk, with bread and butter: this cost me one franc, including two sous to the waiter. I prefer this coffee-house, because they give the coffee in a larger cup than usual, without making it overflow. Those who wish for a more solid breakfast, will find it at the restaurateur's, for twenty-five sous. My dinner cost me two francs, a price for which you get a very good one at a great many of the Paris restaurateurs. I tried several, but the one I preferred was Tavernier's, in the Palais Royal. You have soup, or rather broth, wine, three dishes and a dessert, for your money. I added four sous for the waiters, which I believe is the highest sum usually given. There is a restaurateur at the west side of the Palais Royal (Moureaux's), where they give you four dishes for the same price, but I think the food is hardly so good as at Tavernier's. In all these you dine in a handsome saloon, with everything clean and in good order; you are invariably presented with a clean napkin, and all those little comforts in which the cheaper London eating-houses are so deficient. At Tavernier's they give you ice to cool your wine in hot weather. There are other places still cheaper, which at least make a respectable appearance. In the evening you may have tea at any of the coffee-houses; but my experience is not in its favour, and I sometimes had an ice, sometimes an orgeat, and sometimes contented myself with eau sucrée, which has the merit of being the most economical of the three. *Mais revenons à nos moutons.*

(To be continued).

ART. CLXXXI. — *Notes on the Hieracium nigrescens* (Willd) of Babington's 'Manual,' and Mr. Gibson's *Hieracium hypochaeroides*. By HEWETT C. WATSON, Esq., F.L.S.

BOTH these Hieracia have been long known to English botanists, though never clearly understood. They occur in many localities, and specimens are doubtless preserved in many herbaria. It is not my

wish here to interfere with the good observers who have taken them under examination for the determination of their right names and characters ; but only to supply a few circumstances of their history, by which other botanists will be enabled to identify the specimens of them in collections.

In 1830, the "*Hieracium nigrescens*" was pointed out to me, then a very young botanist, by Professor Graham, on the Clova mountains, as a species which he believed to be distinct from *H. alpinum*, and I still possess specimens then collected. About the same date, perhaps in 1831, Sir W. J. Hooker gave me other specimens from the Cairngorum mountains, as a form of *H. alpinum*. In 1840, Mr. Gardiner, of Dundee, collected many good specimens of the plant for the Botanical Society of London, which were distributed to the members, labelled "*Hieracium Halleri*, *Vill.*" in the writing of Mr. Gardiner. In 1841, I brought living plants to my garden from Ben Aulder, in Inverness-shire ; and still feeling at fault about the true place and name of the plant, I requested the opinion of Mr. Babington, who suggested that it was the *H. nigrescens* of Willdenow. Afterwards, on a living plant being shown to Mr. Borrer, that gentleman also designated it by the same name. On the continent it has been named as variously as in Britain. In my garden, the seeds falling about the plants (in 1842) produced young plants (in 1843) with leaves exactly like those on the original roots from Ben Aulder, but they have not yet flowered. The plant differs from *H. alpinum*, by its very broad leaves with a few strong teeth, and the black involucres. It is altogether a much more rigid plant. The stems are simple or branched, leafy or leafless.

Mr. Gibson's note on his "*Hieracium hypochæroides*" (*Phytol.* 741), is valuable in its tendency to explain a remarkable blunder, as it now appears to be, which [has been copied into several botanical works ; and in the diffusion of which I have been a party concerned, although not exactly in the manner stated by Mr. Gibson. The neighbourhood of Settle, in Yorkshire, has been long recorded as a habitat for *Hypochæris maculata* ; though not recently proved. Mr. Gibson has now confirmed a suspicion which occurred to me from other evidence, that a common *Hieracium* had been misnamed *Hypochæris maculata*, by some of the older botanists, who looked only at its spotted leaves. Hence the introduction of false localities for the latter plant into our books.

In the original '*Botanist's Guide*,' published in 1805, the localities stand thus : — "About Malham Cove, *Dr. Smith*. Near Ottermine

Cove, Settle, *Mr. Caley*." I presume "Dr. Smith" to intend the author of the 'British Flora;' yet, in 'English Flora,' Smith gives no habitat on his own authority. In the New Guide, published in 1835, the localities are reprinted from Turner and Dillwyn's work, with an addition of "Rocks in Gordale," copied from MSS. lent to me by the late Mr. Winch, and in which that locality is inserted on the authority of Mr. Windsor. Mr. Gibson is therefore not quite accurate in saying that I refer the "*plant*" to *Hypochaeris maculata*: my only participation in the matter was that of printing the localities expressly on the authority of other persons.

It was not until the winter of 1840-41, that I saw a specimen under the name of *Hypochaeris maculata*, from the neighbourhood of Settle. In that winter Mr. Tatham sent specimens to the Botanical Society of London, so labelled:—an error that any one might have fallen into under the circumstances. Before those specimens were distributed by the Botanical Society, the labels were altered to "*Hieracium pulmonarium*," and probably with a note of interrogation after the specific name; some doubt, I recollect, being felt, as to whether that name or *H. maculatum* (of Smith) should be given to the specimens in question.

Several years ago the late Mr. J. E. Bowman communicated specimens to my herbarium, under the name of "*H. murorum*,"—and that I still consider to be the proper *specific* name of this spotted *Hieracium*. Mr. Bowman had collected the specimens about Castle Dinas Bran, near Llangollin, in North Wales; and I also gathered the plant in the same locality, in 1832. Early in that year, I found a few very young plants of it, by the falls of the Ogwen, in Caernarvonshire; a locality for *H. pictum*, according to Mr. C. C. Babington, in the New Guide.

In 1836, Mr. James Ward gave me specimens collected near West Burton, in Bishopdale, Yorkshire; and which were labelled "*Hieracium pulmonarium*," and the locality published under that name, in the Supplement to the New Guide. There were likewise examples of the same plant among Mr. Gardiner's collections for the Botanical Society, in 1840; and these also were labelled "*H. pulmonarium, Sm.*" and distributed to various members of the Society. Lastly, I have collected this plant on the mountains of Forfar, Aberdeen, Inverness, and probably Perth shires. The Scottish specimens have usually two or three leaves on the stem, those of Wales and England one or none. The heads of flowers vary from one to three.

Not having seen Mr. Gibson's plant, I cannot confidently say that

it is the same as the specimens from these different localities ; though his own brief account of it, and the specimens sent to London by Mr. Tatham, as before mentioned, leave small room for doubt on this head. Mr. Gibson boldly assumes that his *Hieracium* is the very plant formerly mistaken for *Hypochæris maculata* ; and there appears great probability of the truth of this assumption, although no direct proof is adduced.

Thus far I write in the country, with only my own herbarium to refer to. In passing through London tomorrow on a journey northward, I hope to look into Smith's herbarium for any additional information. The Nos. of 'The Phytologist' for October and November reached my hands together, on the 3rd ; so that I have only just seen the note by Mr. S. Gibson. It now must excite suspicion against the correctness of other northern localities for *Hypochæris maculata*, in Lancashire, Westmoreland and Forfarshire.

Thames Ditton, November 6, 1843.

P.S.—Nov. 7. On reference to Smith's herbarium, I find two specimens labelled "*Hieracium maculatum*." One of these is a garden specimen, the roots of which were brought from Westmoreland, by Mr. Crowe ; and it corresponds well with the various specimens mentioned above, as probably identical with Mr. S. Gibson's plant. The exceptions to this correspondence are seen in its more leafy stem, bearing numerous flowers — the usual effect of cultivation in gardens. The second specimen in the herbarium I should rather have joined with a Sicilian plant labelled "*Hieracium pulmonarium*:" it is located from Breiddin hill, and was collected by Mr. J. E. Bowman. Apparently, the "*Hieracium glaucum*," from the Clova mountains, is still the same plant as the "*H. maculatum*" from Westmoreland.

Of *Hieracium nigrescens*, there are garden specimens in Smith's herbarium, labelled "*H. pulmonarium*?" The roots were found on Ben y Gloe, by Mr. Mackay, and on the Clova mountains, by Mr. G. Don. A specimen labelled "*H. pulmonarium*" (without question), and mentioned to have been collected by Mr. Borrer, at the "River Nivis, near the bridge. Scotland," does not greatly differ from the other two ; but has narrower leaves.

Smith's specimens of *Hypochæris maculata* are all from Suffolk. This circumstance tends to corroborate Mr. Gibson's conjecture, that a species of *Hieracium* was mistaken for the *Hypochæris* in Yorkshire. My own conjecture is, that the *Hieracium* in question is merely the wild form of the garden *H. maculatum*, figured in 'English Botany'

under that name, but only a variety of *H. murorum*. *H. pulmonarium* appears a different species, and more like "*H. nigrescens*."

HEWETT C. WATSON.

ART. CLXXXII.—*Varieties.*

399. *Note on Inula Helenium and Ulex nanus.* Not knowing where to address Mr. Babington at this time, I send the enclosed to you, that it may meet his eye through the medium of 'The Phytologist,' if you deem it worthy a place in that journal. In conformity with the concluding paragraph of the Preface to Mr. Babington's 'Manual of British Botany,' I have to mention that during the late summer I found *Inula Helenium* growing abundantly in a moist meadow upon Newtown farm, in the neighbourhood of Lymington, Hants. Sir W. J. Hooker, in the last edition of his 'British Flora,' describes the flower as "large, terminal, solitary." In the Manual it is said, "heads few together or solitary." The plants found by me had generally four heads, and were consequently very unlike the figure in 'English Botany:' only one had so few as three. Whether any of the heads proved abortive I cannot say, the cattle having trodden them down before more than one blossom had opened. While upon Beaulieu heath in September, which is covered with furze and different species of heath, the former caught my attention from the circumstance that in very few spots only blossoms appeared; these I was disposed to refer to *Ulex nanus*, as they bore a striking resemblance to the figure of that species in 'English Botany.' On further observation, however, the flowers were found only upon the trailing shoots of such plants as had been cut down the preceding winter, rarely did a single shoot present a more erect position. The old entire bushes had not the least appearance of flowers upon them. Upon my return to Bath about the end of the month, I found the open part of the forest, on the Salisbury side of Lyndhurst, covered with furze everywhere in blossom, being so high and erect in many places as to represent Mr. Babington's var. *β. major* of *Ulex nanus*, the blossoms being twice as large as those upon Beaulieu heath. I had no opportunity of minutely examining the calyx, bracts or spines in either case. These facts, and Mr. Babington's not adopting specific characters from the teeth of the calyx, as Sir James Smith has done in 'English Botany,' and Sir W. J. Hooker in his 'British Flora,' but rather from the more or less shaggy surface of that organ, the ovate,

lax or very minute adpressed state of the bracts, or the relative situation of the flowers and spines, induce me to think that none of these appearances may be so constant as to afford specific characters. If so, why is not the var. *β. major* of *Ulex nanus* raised to the rank of a species? Its superior size, erect form, large flowers, and long and strong deflexed spines, seem, equally with *U. nanus*, to entitle it to this distinction. If they be distinct species however, why do the autumnal flowers of Beaulieu heath appear only upon the young shoots of those plants which have been cut down in the preceding autumn or winter? If only one species, why is the season of flowering different? Do the Beaulieu plants, which, in the adult state, seem to belong to *U. europæus*, flowering in the spring, throw out flowering shoots in the autumn, having the appearance of *U. nanus*, in consequence of their not having had branches capable of bearing blossoms in the spring? — *J. F. Davis, M.D.; Bath, October 25, 1843.*

400. *Note on Symphytum asperrimum.* In answer to Mr. Sidebotham (Phytol. 679), I may state my belief that Francis got the name of *Symphytum asperrimum* from my 'Flora Bathoniensis,' p. 32, where it is mentioned as a naturalized plant near Bath.— *C. C. Babington; St. John's College, Cambridge, October 30, 1843.*

401. *Urtica pilulifera in the Isle of Wight.* In your November No. (Phytol. 758), is a list by Mr. G. S. Gibson, of the rarer plants found by him near Ventnor, during a week's stay at that place last summer, amongst which is a notice of *Urtica pilulifera*, near Luccombe Chine. I presume Mr. G.'s specimens were found in a field between the lodge and white gate near Chine-cottage, and the bank towards Rose-cliff and East end, on which *Epilobium angustifolium* grows, as otherwise I should esteem it a favour to be informed of a second locality; but since I have little doubt of my first supposition being correct, I would just beg to ask Mr. Gibson whether on examination he will not find his plant to be *Urtica Dodartii*? — in which case I can assure him he has neither made a discovery, nor secured an acquisition to his herbarium, the seeds of that species having been scattered by myself on the spot (till lately occupied by some ruinous cottages, now cleared away) two years ago, and I imagined the plants had become extinct. I gladly seize this opportunity, much as it tells against myself, of this unexpected exemplification of its injurious tendency, to condemn the practice of attempting to assist or direct Nature in the dissemination of plants, by artificially sowing their seeds in places where it is likely the plants produced may be taken for or confounded with the genuine natives of the soil; a practice which, if not

morally wrong, is, in a scientific point of view, highly reprehensible; as creating confusion in Vegetable Geography, by registering false stations, and cruelly misleading the working botanist by inducing a belief of his having found that which, unless spontaneously presenting itself to his observation, is, to say the least, utterly worthless as an object for examination and record. Having committed this misdemeanour, I feel bound to make the only reparation the act admits of, in a voluntary confession of guilt, and to assure Mr. Gibson that with this single exception, all the remaining, and to me most familiar localities, mentioned in his list, are, to the best of my belief, truly the appointment of Nature,—at all events, I can honestly declare they are none of my making.—*Wm. Arnold Bromfield; Ryde, Isle of Wight, November 1, 1843.*

402. *Note on the New Cuscuta.* Dr. Lindley presents his compliments to the Editor of 'The Phytologist,' and begs to acquaint him that the matter at p. 756, headed a "New Agricultural Pest," and quoted from the 'Ten Towns' Messenger,' was stolen from the columns of the 'Gardeners' Chronicle,' where it formed a leading article on the 9th of September. — *Gardener's Chronicle Office, 3, Charles St., Covent Garden, November 8, 1843.*

403. *A few words more on the Habitats of Equisetum Telmateia.* Probably I have one blunder to answer for here, in common with the other parties who have sent notes on the subject to the pages of 'The Phytologist,'—namely, that of overlooking the proper inference from certain facts which conflict, perhaps, only while not clearly understood. Mr. Newman appears to have given the true explanation, in saying that "closeness and compactness of soil" are unfavourable. The watery situations in which I have seen the plant growing, were most (if not all) of them loosely muddy. The avoided watery situations, as described, were apparently of an opposite character. Several of the dry situations in which it is stated to grow, are upon loose earth or rubbish-heaps. Some of the habitats are in woods; and the soil in woods is often made very loose and porous by the decay of vegetable matter, the boring of worms attracted by the dead leaves, and the digging of moles in pursuit of worms. I beg, however, to add, that the tendency of my own remark on the subject, was to show that the plant did not shun water. My own opportunities had led me to agree with the descriptions of watery localities in many local Floras, and with the ideas suggested by the specific names given to the plant. But I may freely confess now, that the reports of various botanists in 'The Phytologist,' have fully satisfied me about the plant growing

away from water, more frequently and more flourishingly than I had previously supposed to be the case. — *Hewett C. Watson; Thames Ditton, November 5, 1843.*

404. *Reply to Mr. Gibson on Carex distans.* Mr. Gibson's enquiry (Phytol. 777), specially addressed to me, proves (what I was previously unwilling to believe) that he is not aware that the specific characters of *Carex distans*, and of the two allied species, as given in the 4th and 5th editions of the 'British Flora,' have been drawn up by Dr. Boott, and not by Sir W. J. Hooker. To Dr. Boott, as to the "fountain-head" for information on this particular subject, Mr. Gibson should apply; no other person can pretend to give an infallible decision on this point. There is no method yet discovered of knowing the ideas of others, but through the medium of language; and Mr. Gibson may have learned by experience how easily an inadvertent expression may be turned against the writer to his discredit, either with or without a note of interrogation, by one addicted to such *pursuits of literature*. Mr. G. may see no occasion for the characters of *C. binervis* and *C. distans* being remodelled, *because* I have always found myself "at fault in making out the difference between them;" — (if that is not his reason for mentioning this interesting discovery, why does he make it a matter of such importance here?) Admitting, for the sake of argument, that my doubts were about something more than the *value of these differences*, as a foundation for specific characters, does it follow that I must still labour in the dark, and have no help from such able and enlightened men as Dr. Boott? I agree with Mr. G. that a perfect specific character ought not to be remodelled, and that every change must be for the worse; but he evidently confounds the idea of a description with that of a specific character. A description may be perfect, while the specific character extracted from it may be ill-constructed. The legitimate object of a specific character is, as I take it, to express, as clearly and as briefly as possible, wherein one plant &c. differs from all other *known* plants of the same family. For it is impossible to construct the specific character of each, so that it shall answer this end with regard to unknown species; and continual changes and remodellings are, in the very nature of things, indispensable, until a Flora is complete. The sanction for altering the specific characters of *Carex binervis* and *C. distans*, consists in the recent admission of a third species — *C. punctata* — previously unknown as British, with which each of the two had to be contrasted. It is evident that Sir W. J. Hooker did not think so highly of his own specific characters, or he would not have changed them

for others. But it seems that even the *description* of *C. distans* is not so perfect as that Mr. G. cannot remodel and improve it. — *W. Wilson; Warrington, November 6, 1843.*

405. *Note on Mr. Gibson's Carex pseudo-paradoxa.* I observed with some surprise in your last number, a paragraph by Mr. Gibson, headed "Note on a new British *Carex*," (Phytol. 778); and considering myself in some degree obligated to maintain the correctness of the Flora of this neighbourhood, I feel that I ought to afford to the readers of your valuable journal, what little information I possess as relating to this supposed "new species," in order that they may be put in possession of the opinions and facts in connexion with it here. At the present moment I will not stop to describe the exact topographical situation of this interesting plant, "as that is a secret;" but proceed to explain the nature of the circumstances under which the plant grows. All or most of your readers are doubtless aware that *Carex teretiuscula* has always been described as having an isolated and detached mode of growth; being, in this respect, strikingly contrasted with *C. paniculata*, which, until recently, was its only known British ally. In this, the roots form larger or smaller dense and elevated *cæspites*, or, as they are sometimes emphatically named, "stool-tufts." This feature has been in general use of late as an excellent means of diagnosis between the two plants when seen growing, and I may mention that I have had an opportunity of contrasting them on the same spot of ground, and so far as my observations extend, this difference in the formation of the roots is permanent. In the situation where Mr. Gibson's "*Carex pseudo-paradoxa*" is found, the plant has not the opportunity of displaying its characteristic property of isolation, and is compelled to increase by a regular approximation and aggregation of its roots: the place is a swamp, of a very small extent, situated in a rather deep hollow, the site of an old marl-pit, which originally was entirely filled with water. It is bounded on three sides by sloping banks covered with various shrubs, and on the other by the remains of the pit or pond; thus confined, the plant has assumed a singular and unusual habit: the roots are so closely interwoven with each other, as almost entirely to prevent the existence of any other plant, the herbage being constituted of the foliage of this plant, so as to appear like one immense and unbroken root; as we approach the water, however, it begins to separate itself into masses of various sizes, and is more isolated, and in this manner assumes a pseudo-cæspitose appearance: this circumstance, in connexion with its elongate and slender stems, and its more racemose mode of inflo-

rescence, led me, and the friend who was with me, to suspect that it might *possibly* be something new to us, and if so, probably *Carex paradoxa*, Schkuhr. I therefore instituted a very careful examination into all its characters, being solely desirous to learn the *truth* respecting it, whatever that might be; and after spending a considerable amount of time and patience in the enquiry, and carefully considering all the facts, particularly in reference to its *fruit*, which hardly, if at all, differs from that of *Carex teretiuscula* in its ordinary state, I was obliged, though very unwillingly, to conclude that it was nothing but a form of that plant, putting on a different aspect and habit from the adventitious circumstances under whose influence it happened to grow. Schkuhr's admirable figure of *C. paradoxa*, combined with his description, conclusively determined that it was not that plant; feeling however very diffident of my own ability to form a correct and positive opinion, and wishing to avoid even the appearance of error or hastiness of conclusion, I procured a considerable supply of recent specimens, and took them with me to my valued friend Mr. Wilson. We again jointly renewed the examination, which was conducted with all the care and ability we could bestow, both of us being anxious to add another species to our Flora, if we could do so consistently; but after all our pains, the facts were too clear, and the evidence too conclusive, to allow us to consider it as anything else than a modified form of *C. teretiuscula*. With this decision I feel quite satisfied, and I have no doubt Mr. Wilson will bear me out in the statements I have made. I may here also mention that the plant was submitted to Dr. Boott, the prince of our caricologists, and the *fountain-head* from whence *alone* indisputable opinions on this genus are to be expected, and I am proud to add the weight of his great authority in confirmation of our opinion. How Mr. Gibson could possibly assert, with anything like an appearance of truth, that the plant was "a *form* of *C. teretiuscula* with the *fruit* of *C. paniculata*," I am utterly at a loss to conceive; the thing itself is an absurdity. If the plant *has* the fruit of *Carex paniculata*, I opine that all will agree, save Mr. Gibson, that it must be *that plant*, or some state of it, and cannot by possibility be either *C. teretiuscula*, or what Mr. G. pleases to name "*C. pseudo-paradoxa*." An apple-tree does not *generally* produce pears, nor, for the same reason, does one species of *Carex* often assume the fruit characteristic of an entirely different one: the result of your correspondent's observations, however, on this natural law, appear to be at variance with those universally adopted by others. But as Mr. Gibson seems desirous, when anxious to strengthen and confirm his

own opinions, to have the able assistance of yourself, I feel that I cannot do better than submit the merits of this question to your decision. For this purpose I have sent perfect specimens of *Carex paniculata* and *C. teretiuscula*, as well as of *C. pseudo-paradoxa* (*Gibson*), and I shall be greatly indebted to you, and so, I have no doubt, your readers will also, if you will give them your most careful attention, and favour us with the results in the next number of 'The Phytologist.' You will perhaps have the goodness, especially to record on that occasion, the degree of similarity which you may observe between the fruit of *C. paniculata* and the "new species," as the decision of this point is a matter of some importance. I must not forget to notice the rather invidious assertion of your correspondent as to the secrecy which he says is maintained respecting the habitat of this very pseudo-paradoxical plant. No such thing as secrecy has been shown at all;—there was nothing to keep secret, and Mr. Gibson was never refused to have the place made known to him, the individual to whom he applied for that purpose merely declining to accompany him there, because he could not leave his business on a market-day, without great loss and inconvenience: to no one else did Mr. G. apply.—*J. B. Wood; Broughton, November 6, 1843.*

[After the decision arrived at by the eminent botanists above cited, it seems to be a work of supererogation for us to say a word on the subject; at least we cannot suppose that our opinion will add much weight to either side of the question: but since Dr. Wood has done us the honour thus publicly to appeal to our decision, it would savour somewhat of affectation were we to withhold the result of a very careful examination and comparison of the beautiful specimens forwarded by him, as well as of others previously received. Premising then that as we have never seen the plant named *Carex paradoxa*, and know nothing of it except from the short description in Mr. Babington's 'Manual,' and Schkuhr's figure, we are quite unable to say from actual comparison of specimens how far the disputed Manchester plant agrees or disagrees with that species. We must also state that as we have not enjoyed the opportunity of observing the disputed *Carex* in a growing state, our remarks must of necessity be confined to the dried specimens now before us. The first thing which struck us in the Manchester plant, as indicating a difference between it and the usual state of *Carex teretiuscula*, was the more elongated spike — *panicle* we cannot call it — of the former. This occurred some months ago, and since that time we have had an opportunity of seeing a tolerably extensive series of specimens, including those now sent by Dr. Wood, which show that the plant usually known as *C. teretiuscula*, is by no means constant in this respect, and that a regular gradation may be traced from the most dense spike of the one plant to the most elongated form of the other, but we have hitherto met with no approach to the mode of inflorescence of *C. paniculata*. A comparison of the roots, stem and herbage, equally fails to indicate any identity in the disputed plant with *C. paniculata*, while it goes far to establish a very close connexion with *C. teretiuscula*. Since then this plant has undoubtedly "the form of *C. tereti-*

408. *Note on Villarsia nymphaeoides.* Having seen in 'The Phytologist,' several stations for *Villarsia nymphaeoides* in Middlesex (Phytol. 747), I beg to mention one in Surrey. I have seen it growing plentifully near Isleworth ferry, in the ditch between the park and the Thames.—*Alexander Williamson : Kew, November 8, 1843.*

409. *Note on Impatiens fulva.* In addition to the several stations mentioned for *Impatiens fulva* (Phytol. 63), I may name three others, where I have seen it growing this season. The first is near Barnes, in a marsh between the road and the Thames, but it is not plentiful. The second is near Isleworth, on the right hand side of the road to Twickenham, in a ditch that runs across the field, where it is abundant. The third is near Hounslow, where it grows about the sides of some ponds near the mills.—*Id.*

410. *Note on Fritillaria Meleagris.* It may be interesting to some of your readers, especially Mr. Edwards (Phytol. 580), to know that this pretty plant and early ornament of our meadows, produced its drooping flowers in abundance last April, in the locality mentioned by Mr. E., half way between Mortlake and Kew bridge; but I am sorry to say that too many of the *radical* botanists visited this station during the time it was in flower; such hands prove more destructive than the Mortlake children, even supposing they do pull off the flowers to ornament their May-garlands. — *J. Ross : B. G. Kew, November 9, 1843.*

411. *Note on Aspidium spinulosum.* I am sorry to differ from Mr. Bree in respect to his observations on *Aspidium spinulosum* (Phytol. 773), more particularly his remark "that the application of the specific name of *spinulosum* to a British fern (first adopted, I believe, by Smith and Sowerby in 'English Botany') originated in error." The error will, I think, rest with the continental botanists, beginning with Willdenow, who applied this name to a plant differing from the species so named by Muller in 'Flora Danica.' This author first introduced our plant in his 'Flora Fridichsdalina,' published in 1767, as a variety of *Polypodium Filix-femina*: becoming editor of the 'Flora Danica,' he figured it in that work, No. 707, under the name of *Polypodium spinulosum*. Withering was the first English author who noticed it: my excellent friend, the late James Dickson, referred to by Mr. Bree, was, I believe, acquainted with the plant, but has nowhere published it. Withering was followed by Hull and Symons; Smith, changing the generic name to *Aspidium*, described it in 1804, in his 'Flora Britannica' (vol. iii.), well observing, — "*Distincta species a Cl. Witheringio bene elucidata.*" By this it will appear

very frequently with intermediate teeth : leaves ovato-spathulate when full grown, lanceolate when young. Perennial : flowering in August and September, about a fortnight later than *S. Limonium*. It grows in large tufts, as many as twelve or even more flowering stems frequently rising from a single plant. *S. Limonium* is common in company with it, but I have not seen any specimens which could truly be said to present intermediate grades. Whether small, or in the greatest luxuriance, *S. rariflora* preserves most completely its *prima facie* distinction — the inflorescence. In no instance have I seen the flowers at all crowded towards the ends of the branches, as they always are, even in the fewest-flowered specimens of *S. Limonium*. Having a few specimens still left, I shall feel pleasure in supplying any of your correspondents who may wish for one, as far as my duplicates will go.—*W. L. Notcutt ; Fareham, November 7, 1843.*

407. *On the plurality of Buds in the axilla of a single leaf.* Not having particularly examined the instances pointed out by Mr. Watson (Phytol. 776), I am not prepared to say whether they are completely in accordance with that which I have observed in the locust-tree. None of the Fuchsias, which I have now the opportunity of inspecting, exhibit the character which he mentions ; and the buds of the vine are essentially different from those of the locust-tree, of which I enclose a specimen, showing two young contiguous branches of the present year, gathered in June last, along with several other similar proofs. In that which accompanies this note, it will be seen that the lower shoot is the most vigorous ; but this circumstance is comparatively rare. If the two buds of the vine develope into branches in the same season, there is no mutual interference ; but in the case of the locust-tree, it is quite otherwise, and if both were to continue to grow for a few years, they would be incorporated together. The succession bud of *Fuchsia* may be nothing more than an axillary shoot from the base of the axillary flowering branch ; or if otherwise, may not be visible (that is, not in existence as a bud) at the time when the bud of the flowering branch first becomes apparent. Lateral buds are not confined to the axillæ of leaves, and there may be successive formation as well as successive development of axillary buds : but whenever this takes place, it may be expected to occur above rather than below the first-formed bud ; quite the reverse of what happens in the locust-tree, where the second and third buds below the first or principal bud, are in a condition to replace immediately the one which is first developed, in the event of its failure.—*W. Wilson : Warrington, November 8, 1843.*

in the absence of the silvery substance which is so conspicuous in the other two. By this it would appear that we have two distinct plants under this name; but on turning to my Sowerby-bridge specimen, I find it to correspond with the Ash-grove plant in its long and somewhat interrupted spike, and with my south of England specimen in having the silvery-looking substance, but in a less degree. Since I find such different forms in the few specimens which I possess, I shall risk no opinion as to their specific identity, but if Mr. Edmonston would wish to see any of (or all) the specimens I have alluded to, I shall take pleasure in giving him the loan of them for a short time. In addition to the above I might say that on looking over the grasses in the collection of Samuel Hailstone, Esq., I observe some south of England specimens of *Cynosurus echinatus*, which are identical with my own from that part.—*Samuel Gibson: Hebden Bridge, Nov. 11, 1843.*

414. *Note on Poa maritima.* Whilst on the subject of grasses I would just say that if any of your correspondents could furnish me with a specimen of the *Poa maritima* which has "the branches of the panicle smooth," as stated Phytol. 294, they would bestow a favour on me.—*Id.*

ART. CLXXXIII. — *Proceedings of Societies.*

BOTANICAL SOCIETY OF LONDON.

November 3rd, 1843. — Hewett Cottrell Watson, Esq., F.L.S., V.P., in the chair. Donations of British Plants were announced from Mr. G. S. Gibson, Mr. W. L. Nutcutt, and Mr. A. Henfrey. The following papers were read: — "On the Botany of Litchfield," by the Rev. R. Garnett. "Notes on a species of *Cuscuta* found at Duxford, Cambridgeshire," by Mr. Frederick Bond.

The Chairman presented a series of specimens of the common birch, in order to show that the forms described by different authors, under the names of *Betula alba*, *pendula*, *glutinosa* and *pubescens*, are only varieties of one single species—the original *Betula alba* of Linnæus. Mr. Watson stated that he had repeatedly found upon different branches of the same tree, the various forms of leaf and other characters which were given as the distinctions between these supposed species; and that the leaves of *Betula glutinosa* or *pubescens* were produced usually (if not always) on the seedling plants of *Betula alba* or *pendula*.

Specimens of *Primula elatior* from the Bardfield station were presented by Mr. E. Doubleday. These specimens were remarkable for the wide variation in the relative length of the calyx and corolla, and also in the form of the leaves; some specimens resembling the primrose in their tapering leaves, while others had the abruptly contracted leaves similar to those of the cowslip.

Specimens of *Barkhausia setosa* were exhibited, one of which was presented by Mr. Cumming in 1841, collected by him at Audley End, Essex, the other was presented by Mr. G. S. Gibson, and collected by him in a field near Sampford, Essex, in 1843.

G. E. D.

THE PHYTOLOGIST.

No. XXXII.

JANUARY, MDCCCXLIV.

PRICE 1s.

ART. CLXXXIV. — *Notice of a Visit to Black Notley, Essex, the birth-place and residence of John Ray.* By JOSHUA CLARKE and G. S. GIBSON, Esqs.

It was on a hazy morning in July that we started from Saffron Walden on a botanical excursion, undertaken chiefly with the view to visit the tomb of John Ray, and to explore the village which derives its interest and celebrity from having been the birth-place of that illustrious man, and his residence during a considerable portion of his life.

The first object of Natural History to be mentioned on the journey is, that at a short distance from the village of Sampford we observed the *Cuscuta* which has lately been so destructive to clover (*Phytol.* 758), committing great ravages in a field of that plant; and we have since been informed that it has destroyed about one fourth of the crop. There is no doubt of its having been introduced with foreign clover-seed, but whether it be a variety of *C. Epithymum* or a distinct species, does not appear to be fully ascertained. It is a plant of more vigorous growth, spreading itself in circular patches, from four to ten feet in diameter.

The village of Sampford is an excellent locality for *Lilium Martagon*, where it now appears to be truly wild, both in a hedge and wood in the neighbourhood. Seeing some fine ones in blossom in a cottage garden, we asked the owner where he procured them; and the reply given was that he dug them up from a hedge in the lane, where they grew plentifully. He further stated that they had been there ever since he was a boy, probably about forty years. Up this lane, which is bounded by high banks and old copse-like hedges, we gathered upwards of a dozen specimens in flower, and left as many remaining. Near the same village we likewise saw *Ranunculus parviflorus*, *Petroselinum segetum*, *Scirpus sylvaticus*, and other plants. Pursuing our journey, we noticed in the hedges near Dunmow, *Ulmus major*, whose reflexed branches, winged with corky excrescences, can scarcely fail to attract attention. On a common by this town we gathered *Anagallis tenella*, *Sium inundatum*, *Veronica scutellata*, *Mentha Pulegium*,

Peplis Portula, *Nardus stricta*, *Agrostis pumila*, *Festuca bromoides* &c., and further on the road *Oenanthe Phellandrium*. In the centre of the pretty village of Saling stands a remarkably fine tree of *Ulmus montana*, var. *β. pendula*, whose elegant form and gracefully pendulous branches lead one to express a regret that more of this fine tree are not planted instead of the commoner and inferior ones. *Doronicum plantagineum* and *Vinca minor* grow near the village, and as we approached the town of Braintree, we gathered *Dipsacus pilosus*.

The village of Black Notley is situated about two miles from Braintree; it is a small, scattered, purely Essex village; as we approached it, the occasional gleams of the sun foretold a fine day, and added beauty and freshness to the quiet scene. Although the village affords but one very poor inn, we sat down to a hearty breakfast, not prepared to quarrel with our provision or accommodation. This over, we started forth to see and hear all we could regarding the illustrious Ray. Washington Irving remarks that "Genius seems to delight in hatching her offspring in bye corners." Ray was an exemplification of this; he was born here in 1628, and is said to have been the son of a blacksmith, but of this we found no traditional evidence, neither could we learn where the original blacksmith's shop had stood; the inhabitants speak of him as a very wonderful man who knew everything, and had travelled all over the world.

The church is an old plain tiled building, with rather a picturesque wooden spire, and stands in a delightfully rural situation. The church-yard is a good-sized enclosure, planted with horse-chestnut and elm: in this retired spot, on the south side of the church, rest the mortal remains of the greatest of British naturalists. The tomb is neat and handsome, of a pyramidal form, from ten to twelve feet high, and bearing an elaborate and appropriate Latin inscription. This monument was erected by Compton, Bishop of London, one of Ray's cotemporaries, and about fifty years since was restored by Sir Thomas Gery Cullum, and is now in excellent preservation.

The house in which Ray is said to have lived, stands on a hill about half a mile from the church, and is now used as a farm-house, but the present inhabitants could give us no information, and seemed not at all aware that they were treading the same boards as were trodden by the great Ray, or looking on the same fields and trees as he once admired. Adjoining the meadow below the house is a garden, which still bears the name of "Ray's Orchard." It is now held by an octogenarian market-gardener, who appeared to possess much of the ancient simple but genuine hospitality, and who was much pleased to

point out to us an old pear-tree, which tradition says was planted by Ray; its hollow trunk bears evident marks of great age, but the tree still retains considerable vigour, and yields an abundant crop.

As the day proved delightfully fine, we rambled about to notice the Natural History of the village; and although we did not find anything very rare, yet every object seemed to derive additional interest from its locality. A quiet little stream glides noiselessly through the meadows below the church, and on the opposite side of it is a picturesque wood. Near the former we observed the willow-wren (*Sylvia Trochilus*), the lesser whitethroat (*S. Curruca*), the blackcap (*S. atricapilla*) and the nightingale (*S. Luscinia*). The banks of the stream abound with several species of *Libellula*. In the meadows and adjoining wood we saw the speckled wood butterfly (*Hipparchia Aegeria*), *Argynnis Paphia*, *Vanessa Polychloros*, *V. Iö*, *Polyommatus Alexis*, *Pamphila sylvanus*, &c.

Among the plants noticed were *Ranunculus arvensis*, *Reseda Luteola*, *Scleranthus annuus*, *Cerastium aquaticum*, *Malva moschata*, *Euronymus europæus*, *Genista tinctoria*, *Trifolium ochroleucum*, *Pyrus communis*, *Sison Amomum*, *Torilis infesta*, *Viburnum Opulus*, *Petasites vulgaris*, *Pyrethrum Parthenium*, *Campanula hybrida*, *Lycopus europæus*, *Mentha sylvestris*, *Chenopodium polyspermum*, *Tamus communis*, *Carex pendula*, *Milium effusum*, *Melica uniflora*, *Festuca loliacea*, *Polystichum aculeatum*, &c.

After having finished our ramble, and having partaken of such provision as the inn afforded, we set out on our return home, thus concluding a very agreeable and interesting excursion to a spot, which must be deemed by every naturalist to possess something of a sacred character. And although the labours of Ray are little known in his native village, it is pleasing to reflect that by the public generally his works are increasingly valued.

We cannot perhaps better conclude this notice of our excursion than with the following brief sketch of the life and works of John Ray.

Ray was born in 1628; and although his father was in so low a station of life, he contrived to give him a liberal education. He was sent when young to the grammar-school at Braintree, and afterwards entered Trinity College, Cambridge, where, in 1649, he obtained a fellowship, and took the degree of Master of Arts. In 1651 he was appointed Greek Lecturer, and in 1667 was elected Member of the Royal Society. The work by which he is best known to the public, is his 'Wisdom of God in Creation,' an original and extraordinary work in its day, and one replete with philosophical detail, which

breathes in no ordinary degree the spirit of Christian piety; and it is gratifying to see how, as knowledge has increased, his ideas of Natural Theology, in connexion with Natural History, have been carried out, first by Derham in 1720, then by Paley, and in the present day by the Bridgwater Treatises, MacCulloch, and others.

His works on Botany are numerous and extensive. He was unquestionably the first who reduced that science to system, and thus paved the way for the immortal Swede; he found Nature a trackless wilderness, but his genius and perseverance reduced it to order, method, and systematic arrangement. Linnæus truly characterises his '*Historia Plantarum*,' as "*opus immensi laboris*." Sir J. E. Smith observes,—“Of all the systematical and practical Floras of any country, Ray's '*Synopsis*' is the most perfect that has ever come under our observation. He examined every plant recorded in this work, and even gathered most of them himself. He investigated their synonyms with consummate accuracy, and if the clearness and precision of other authors had equalled his, he would scarcely have committed an error.” His publications on the various departments of Zoology have established his high reputation as a philosophical naturalist. His '*History of Insects*,' Mr. Haworth observes, is a masterpiece of clearness and precision. He was an intimate friend of Willughby, with whom he travelled through the Low Countries, Germany, Italy, &c., and subsequently assisted him to arrange his collections in all the various branches of Natural History. After the premature death of his friend, Ray acted as tutor to his children, with whom he resided for some time. But this excellent and admirable man appears to have spent many of his last years in his secluded native village, retaining his intellect to the last, and dying in 1705, at the age of seventy-seven.

Ray was a man whose whole life is to be admired. Even amid the ardour with which he prosecuted his scientific studies, he appears always to have kept in view this noble object, the advancement of the glory of God, and the good of his fellow-creatures.

The second centenary of his birth was celebrated in London in 1828, by a public dinner, at which were present many of the most celebrated naturalists and leading characters of the day, the President of the Royal Society occupying the chair.

G. S. GISSON.

Saffron Walden, October, 1843.

ART. CLXXXV. — *On the Varieties of Betula alba of Linnæus, described as distinct Species by some authors.** By HEWETT C. WATSON, Esq., F.L.S.

THERE is, perhaps, in the present day, scarcely any circumstance more calculated to impede the progress of botanical science, and to throw difficulties in the path of the younger botanist, than the growing fondness for changing names, and for inventing species in books which have really no distinct existence in nature. I believe that it would be no exaggeration of the number of these spurious species now enumerated in the descriptive Floras of Britain, if I were to estimate them at about two hundred. But in the present paper my remarks will be restricted to those imaginary species which have been carved out of our common birch, the *Betula alba* of Linnæus.

When the last volume of Smith's 'English Flora' was published, in the year 1828, this tree was described as a single species under the name of *Betula alba*. But the author of that still valuable work did slightly mention a pendulous variety, which had been published in Germany, as a distinct species, under the name of *Betula pendula*. And in the various editions of the 'British Flora,' we find the authority of Sir W. J. Hooker added to that of Sir J. E. Smith; since the latter work still describes the birch-tree as one species only, though stating, in the last edition (1842), that the name of *B. glutinosa* appeared in the 'Edinburgh Catalogue,' as if belonging to a distinct species.

In Lindley's 'Synopsis of the British Flora,' which followed shortly upon the completion of the 'English Flora,' we find the pendulous form described as a distinct species, under the name of *Betula pendula*, *Roth.*

In the second edition of the Catalogue published by the Botanical Society of Edinburgh, in 1841, the views of Dr. Lindley are not recognized; his species, *Betula pendula*, being enumerated only as a variety of *B. alba*. To compensate this reduction of one pretended species from the number, another was found, and introduced into the Catalogue under the name of *B. glutinosa*, *Wallr.*

In that capital work, the recently published 'Manual of British Botany,' by Mr. C. C. Babington, Dr. Lindley's *B. pendula* is at last utterly cashiered, being not even given as a variety. But to make up

* Read before the Botanical Society of London, November 3, 1843; communicated by the author.

for the omission of this variety (allowed by the same author, two years before, in the 'Edinburgh Catalogue') we now find in the 'Manual' another variety, not of *B. alba*, but of *B. glutinosa*, introduced under the name of "pubescens."

Thus, taking the Floras together, we have three species of birch-tree — *B. alba*, *B. pendula* and *B. glutinosa*; the last of these three being subdivided into the typical (usually glabrous) form and the variety pubescens. In this medley of contradictory views, I hold that Smith and Hooker are correct, in describing only one species; and that Lindley's *B. pendula*, and Babington's *B. glutinosa*, are merely forms of that one species, the *Betula alba* of Linnæus.

Dr. Lindley's name stands very high among botanists, and deservedly so, but his botanical reputation has never been considered to rest on any skill in the discrimination and determination of species; and since both Hooker and Babington have thought fit to reject *B. pendula*, we may safely pass it over at present, as a mere book-species.

Betula glutinosa and its variety pubescens, still remain open for investigation. In the Manual, we are told that *B. alba* is readily distinguished from *B. glutinosa* "by its leaves, but more certainly by its fruit." The difference between the leaves of the two is thus stated:—

B. alba.—"Leaves rhomboid-triangular doubly serrate acuminate."

B. glutinosa.—"Leaves cordate-ovate unequally serrate acute."

This reads very satisfactory on paper, and may appear equally so in small specimens for the herbarium. Unfortunately, however, for this ready distinction of the species, while old trees, with pendulous branches, are clothed with leaves exactly corresponding with this description of the leaves of *Betula alba*, the seedling plants which spring up underneath them, produce cordate and pubescent leaves. The old trees are thus *B. alba*, while their young progeny are *B. glutinosa* variety pubescens. Moreover, I have repeatedly seen, on the same single tree, that the upper and drooping branches bore the rhomboid leaves of *B. alba*, while the lower ascending or nearly horizontal branches were clothed with the cordate-ovate leaves said to be characteristic of *B. glutinosa*. And still, on the same trees, I have occasionally observed completely cordate and pubescent leaves, like those of the seedling plants, produced on suckers from the root, on soft shoots near the base of the old trunk, on late autumnal branchlets, and on those fast-growing shoots which push out where branches have been lopped.

The serratures of the leaves are equally variable as their forms, and doubly serrate leaves may be seen growing on the same tree with un-

equally serrate leaves. And I fear that the fruit is not a whit more constant to the characters given for these supposed species. In the *Manual*, we have the characters of the fruit described thus : —

B. alba.—"Fruit obovate-elliptical shorter than the rounded membranous margin."

B. glutinosa.—"Fruit broadly obovate as long as the rounded membranous margin."

The difference of form between "obovate-elliptical" and "broadly obovate" is not great; and I have seen still wider differences in form, even on the very same tree; and such differences may readily be found in the fruit of trees whose leaves are undistinguishable in their form and serratures. I have also seen the fruit of *B. glutinosa* (namely, of trees with cordate-ovate leaves) shorter than its membranous margin, and that of *B. alba* (namely, of trees with rhomboid leaves), equalling or longer than the margin.

In conclusion, therefore, I boldly assert, in contradiction to the belief of Mr. Babington, that *Betula alba* and *B. glutinosa* are not only one single species, but are often undistinguishable as varieties, since both forms may appear on different branches of the same single tree.

HEWETT C. WATSON.

Thames Ditton, November, 1843.

ART. CLXXXVI—*A Few Days in Suffolk.* By W. L. NORCUTT, Esq.

HAVING read with much interest the various details of botanical excursions which have from time to time appeared in 'The Phytologist,' it has occurred to me that a few particulars respecting the results of a short visit which I paid to Ipswich and the neighbourhood during a part of the month of June last, might not be unacceptable, especially as the floral riches of the county of Suffolk are by no means despicable. I reached Ipswich on the 13th of June, and on the following day wended my way by the side of the Gipping, with the view of ascertaining what it might afford in the way of Botany. The first plants worth notice which caught my eye were *Thalictrum flavum*, *Lythrum Salicaria* and *Angelica sylvestris*, growing most luxuriantly by the sides of the neighbouring ditches, but none of them as yet in blossom. A little further on were a few specimens of *Hippuris vulgaris* growing near the side of the river, while, nearer the centre of the stream, some fine plants of *Nuphar lutea* were displaying their beautiful flowers. On crossing a grass-field, a broad stagnant ditch afforded me *Hydrocharis Morsus-ranæ*, *Lemna polyrhiza* (the purple underside of which contrasts beautifully with the pale green of the

upper surface), *Hottonia palustris* and *Nuphar lutea* again. In returning to Ipswich but little worthy of note offered. The sides of the ditches were richly bedecked with the common, though not on that account the less beautiful, *Myosotis palustris*, while *Anthriscus vulgaris* and *Silybum Marianum* were plentiful by road-sides. On a wall in the London road was formerly a habitat (I believe the only one in the neighbourhood) for *Geranium lucidum*; but though anxiously looked for, not a single specimen was this year to be found.

On the 15th the beautiful morning tempted me to direct my steps to Freston tower, a picturesque spot about four miles down the Orwell. At Bowen-bridge, two miles from Ipswich, *Beta maritima* and *Statice Limonium* were growing sparingly. A little on the hedge-banks beyond the Ostrich, the rare *Turritis glabra* was growing in moderate quantity: this is, I believe, its only locality near Ipswich. On the opposite side of the road was plenty of *Festuca bromioides*, while at a little distance, the salt marsh at the side of the river was carpeted with a rich display of the beautiful blossoms of *Armeria maritima*. On ascending the hill leading to the tower, a fine specimen or two of *Potentilla* [argentea?] presented themselves, while in the neighbouring corn-fields the beautiful though evanescent blossoms of *Erodium cicutarium*, which was growing in great luxuriance and abundance, could not fail to strike the eye: I had also the pleasure of gathering on this spot some good specimens of *Thlaspi arvense*. I remember hearing an experienced botanist remark, with regard to this plant, that he had never found it for two successive years in the same place; even when he had met with it in some abundance, it was probably not to be seen in the same place again for some time afterwards. I have had but two opportunities of watching the plant, and so far as my observation goes, the above remark holds good. If it is correct, it is a curious fact; what is the cause of it? In a meadow below the tower I have formerly gathered *Orchis Morio* in plenty; and in Freston wood, *Lysimachia nemorum* and the two *Chrysosplenias* used to be found, but I was too late for them this year.

"Portman's walks" and its neighbourhood, close to Ipswich, afford several interesting plants. In the ditches were fine specimens of *Butomus umbellatus*, which is a rare plant about Ipswich, though it grows in several spots. In the farther part of the walks *Thlaspi arvense* used to grow, and here I have formerly gathered the finest specimens I ever saw; this year not a vestige of it was to be seen. The same may be said of *Leonurus Cardiaca* and *Delphinium Consolida*, the latter of which, I recollect, ten or eleven years ago, used to

grow in splendid profusion at the top of the hedge-banks. *Saponaria officinalis* still grows here in plenty, but has double flowers. Turning from the walks towards the salt river, *Samolus Valerandi* makes its appearance in the ditches, while by their sides grows *Thalictrum flavum* in abundance. A little further on is *Lepidium latifolium* in profusion by the side of the "Shoulder-of-mutton pond." Returning to Stoke bridge, I looked along the new embankment formed by the side of the wet dock, thinking that perhaps among the newly-exposed gravel, something of interest might have sprung up, and was much pleased in gathering *Lepidium ruderales*, a plant I had never met with before within twelve miles of Ipswich.

On the 17th a stroll to the race-ground and the decoy-ponds afforded me *Arenaria rubra*, *Anthemis arvensis*, *Aira caryophyllea*, *Carex ovalis*, *Juncus squarrosus*, *Ornithopus perpusillus* and *Festuca myurus*; had time permitted, I have no doubt that many more interesting plants would have rewarded my researches.

On the 19th I left Ipswich for Felixtow, a small village on the Suffolk coast, which presents many interesting features to the botanist. It is about twelve miles from Ipswich, and the neighbourhood will amply repay an industrious search. I spent part of two or three days in investigating that part of the coast which lies between Felixtow and Landguard fort, at the entrance of the Orwell, and just opposite Harwich. The first plant which attracts attention is *Ammophila arenaria*, which abounds on the sandy ground in front of the hotel, and amongst it is *Schlerochloa maritima*, and fine specimens of *Convolvulus Soldanella* in profusion. About a mile from Felixtow, *Festuca uniglumis* and *Carex arenaria* appear in the sand; while on the sandy plain at the back of the beach, *Phleum arenarium* abounds, and associated with it is *Valerianella dentata*, var. *β. mixta*, though but sparingly. Close at hand is a Martello tower, and here we begin to meet with *Trifolium suffocatum*, *Medicago minima*, *Geranium pusillum*, *Trifolium scabrum*, and the beautiful white-flowered variety of *Erodium cicutarium*. From this place to Landguard fort, the two former plants are so abundant, that many parts of the green sward are composed of scarcely anything else; and should they be desiderata with any of your correspondents, I shall be happy, if my life is spared, to supply any of them with specimens next season, if they will intimate their wishes to me in time. On the right of the town is a salt marsh, nearly covered with *Halimus portulacoides*, and in front lies Landguard fort. On the sandy point to the left of the fort we meet with *Euphorbia Paralias*, *Glaucium luteum*, *Adenarium peploides*, *Silene*

maritima and *Eryngium maritimum*; and Landguard fort itself is one of the reputed stations for *Tamarix anglica*, although I must confess that there is no appearance of its being truly wild. It is very abundant, for there are whole hedges of it on the grounds of the fort, and within the fortifications there are some very fine and aged tamarisk trees, the branches of which are supported by props. One of the largest trees I measured, and found its circumference to be six feet three inches. On that part of the coast which lies between Felixtow and Bawdsey-ferry, at the entrance of the river Deben, I was surprised to find that the encroachments of the sea had swept away most of the plants which I used to find there, such as *Salsola Kali*, *Cakile maritima*, *Atriplex laciniata*, &c. Near Sir S. Fludyer's were some fine plants of *Koniga maritima*, which, however, had doubtless escaped from the garden. Here likewise are abundance of tamarisk trees, but all are planted, and have been raised from those at Landguard fort. On the sandy common forming the corner of the land at Bawdsey-ferry, *Medicago minima*, *Trifolium suffocatum* and *T. scabrum* are again plentiful; and, growing among them, the pretty *Sedum anglicum* is frequent. Within the enclosure of a sunken bastion, *Salvia verbenaca* and *Trifolium ornithopodioides* were growing, as was *Carduus tenuiflorus* on the common. On the opposite side of the Deben we gathered *Eryngium maritimum*, *Koeleria cristata*, *Salsola Kali*, *Atriplex laciniata* and *Carex divisa*. Returning to Felixtow by the fields, I had an active search for *Agrostis Spica-venti*, which I formerly found in a corn-field close to the terrace, but I was much disappointed in not meeting with a single specimen. However, I was somewhat rewarded for the vexation by finding in a hedge not far off, some most luxuriant plants of *Fumaria capreolata*, the cream-coloured blossoms of which, with their dark purple tips, were remarkably attractive and beautiful. My paper has already extended to such a length, that I must only remark that a walk to Walton-ferry afforded me *Lathyrus Nissolia* in profusion, *Geranium pyrenaicum*, *Hyoscyamus niger*, *Ranunculus sceleratus* and *Vicia sativa*, var. *β. angustifolia*. Thus ended my Suffolk trip, and I should be very happy if the detail of my researches should afford your readers a tithe of the pleasure in the perusal which the recollections and associations it brings to mind while writing it give to me.

W. L. NOTCUTT.

Fareham, November 1, 1843.

ART. CLXXXVII. — *Rarer Plants observed in the neighbourhood of Teignmouth, Devon.* By ROBERT C. R. JORDAN, Esq.

Lympstone, Devon, September 7, 1843.

SIR,

I have sent you a list of some of the rarer plants found in the neighbourhood of Teignmouth, Devonshire, the farthest range from that place being about sixteen miles. They are classed according to the Linnæan system, which has always appeared to me the best adapted for the arrangement of British plants at least. Hoping the list may prove acceptable to some of your readers, I remain,

Yours very truly,

ROBERT C. R. JORDAN.

To the Editor of 'The Phytologist.'

-
- | | |
|--|---|
| <i>Salicornia herbacea.</i> Salt marshes. | <i>Gentiana campestris.</i> Babbacombe cliffs. |
| <i>Zostera marina.</i> Teignmouth beach after storms. | <i>Eryngium maritimum.</i> Beach at Teignmouth &c. |
| <i>Ligustrum vulgare.</i> Teignmouth cliffs &c. | <i>Daucus maritima</i> and <i>Crithmum maritimum.</i> Cliffs, Teignmouth. |
| <i>Veronica Anagallis.</i> Banks of the Teign. | <i>Statice Armeria</i> and <i>Limonium.</i> Salt marshes. |
| <i>Pinguicula lusitanica.</i> Marshes near Haldon. | —— <i>rariflora.</i> Near Exmouth. |
| <i>Salvia Verbenaca.</i> Cliffs, Teignmouth. | <i>Galanthus nivalis.</i> Banks of the Teign. |
| <i>Valeriana rubra.</i> Old walls. | <i>Narcissus biflorus.</i> Near Dawlish. |
| —— with white flowers. Dawlish cliffs. | —— <i>Pseudo-narcissus.</i> Ashburton. |
| —— <i>dioica.</i> Near Newton. | <i>Allium ursinum.</i> Near Newton. |
| <i>Iris fatidissima.</i> Common. | <i>Scilla autumnalis.</i> Babbacombe cliffs. |
| <i>Rubia peregrina.</i> Hedges at Teignmouth, common. | <i>Narthecium ossifragum.</i> Marshes, Haldon. |
| <i>Plantago Coronopus.</i> Teignmouth beach and on Haldon. | <i>Saponaria officinalis.</i> Near Dawlish. |
| —— <i>maritima.</i> Dawlish warren. | <i>Dianthus Armeria.</i> Haldon &c. |
| <i>Anchusa sempervirens.</i> Dawlish, hardly wild. | <i>Silene anglica.</i> Near Dawlish warren. |
| <i>Anagallis tenella.</i> Marshes, Haldon. | —— <i>maritima.</i> Cliffs at Teignmouth. |
| <i>Convolvulus Soldanella.</i> Dawlish warren. | <i>Arenaria peploides.</i> Teignmouth beach. |
| <i>Campanula rotundifolia.</i> Near Torquay, rare. | <i>Cotyledon Umbilicus.</i> Common. |
| —— <i>hederacea.</i> Marshes on Dartmoor, Spitchweek, &c. | <i>Cerastium aquaticum.</i> Near Newton. |
| <i>Viola hirta</i> and <i>odorata.</i> Woods &c. | <i>Spiræa Filipendula.</i> Babbacombe cliffs. |
| —— <i>palustris.</i> Marshes on Haldon. | <i>Rubus Idæus.</i> Near Ashburton. |
| <i>Hyoecyanus niger.</i> Dawlish warren. | <i>Papaver hybridum.</i> Near Dawlish. |
| <i>Vinca minor.</i> Hedges &c. | <i>Glaucium luteum.</i> Cliffs, Teignmouth. |
| | <i>Helianthemum polifolium.</i> Babbacombe cliffs. |
| | <i>Delphinium Consolida.</i> Teignmouth, rare |
| | <i>Aquilegia vulgaris.</i> Woods. |
| | <i>Helleborus viridis.</i> Near Newton. |

- Lamium album*. Ashburton &c., not found in the immediate neighbourhood of Teignmouth.
- Melittis Melissophyllum*. Woods &c.
- Scutellaria galericulata*. Exmouth.
- Rhinanthus Crista-galli*. Haldon.
- *major* [?]. Woods &c.
- Antirrhinum Oronitum*. Sandy fields.
- Alyssum maritimum*. Exmouth, hardly wild.
- Tendalia nudicaulis*. Haldon &c.
- Cochlearia officinalis*. Banks of the Teign.
- *danica*. Beach, Teignmouth.
- *Armoracia*. Dawlish.
- Cakile maritima*.
- Cheiranthus Cheiri*. Dawlish cliffs.
- Brassica oleracea*. Babbacombe cliffs.
- Erodium cicutarium*, with white flowers. Den, Teignmouth &c.
- *moschatum*. Exmouth.
- Geranium lucidum* & *columbinum*. Common near Teignmouth.
- Lavatera arborea*.
- Fumaria lutea*. Old walls near Newton.
- Lathyrus Nissolia*. About three miles from Teignmouth, on the Newton road.
- *sylvestris*. Cliffs, Teignmouth.
- *latifolius*. Dawlish warren, but hardly wild.
- Vicia sepium*, with white flowers. Bradley woods, near Newton.
- *bithynica*. Cliffs, Teignmouth.
- Hedysarum Onobrychis*. Road between Teignmouth and Torquay.
- Trifolium subterraneum*.
- Lotus angustissimus*. Near Bishopsteignton.
- Medicago maculata*.
- Hypericum Androsæmum*.
- *calycinum*. Near Ashburton.
- *quadrangulum, perforatum, humifusum, montanum, pulchrum*, and *elodes*.
- Tragopogon pratense*. Near Bishopsteignton.
- Picris echinoides*. Cliffs, Teignmouth.
- *hieracioides*. Near Newton.
- Serratula tinctoria*. Woods near Ashburton.
- Artemisia campestris*. Banks of the Teign.
- *maritima*. Teignmouth beach.
- *Abrinthium*.
- Chrysocoma Linosyris*. Berryhead.
- Aster Tripolium*. Salt marshes; the variety with the outer or purple florets wanting occurs near Exmouth.
- Pyrethrum maritimum*. Salt marshes.
- Anthemis nobilis*. Haldon &c.
- Achillea Ptarmica*. Banks of the Teign.
- Centaurea nigra*, var. *radiata*. Common.
- Orchis bifolia*. Woods.
- *pyramidalis, mascula, latifolia* and *maculata*.
- Ophrys apifera*. Babbacombe cliffs.
- Neottia spiralis*. Ditto.
- Myrica Gale*. Near Ashburton.
- Tamus communis*.
- Buzus sempervirens*. Scarcely wild.

ART. CLXXXVIII.—*Notes of a Botanical Excursion in France, in the Summer of 1843.* By JOSEPH WOODS, Esq., F.L.S.

(Continued from page 801).

On the 19th I went to Fontainebleau, on what turned out to be a thoroughly wet day. I left the diligence at Chailly, following the directions given to me by M. de Jussieu. The landlady there charged me four francs for my breakfast, under the pretence that she had given me a bottle of old Burgundy. In general I find the people very honest and moderate in their charges in the French villages and small towns—this was an exception.

I left the high road on the right, and after crossing some corn-fields and a small wood, followed the direction of a sharp brow in the forest where the sandstone is much quarried, to the *Belle Croix*, sometimes dipping into the valley beneath, to see if any plants were to be found differing from those above. The crest is rocky, the valley, or at least the lower part of the slope, is of loose sand, but the best Botany is on the crest. The position of some of the plants the most peculiar to Fontainebleau, is very curious. The forest exhibits a remarkable development of a tertiary sandstone, of which the harder parts form a rocky crest to the hills. On the top of these rocks are hollows often containing water. These pools do not perhaps occupy a fourth part of the surface which drains into them, but it is a surface of rock either naked, or very slightly covered with a dark heathy soil, and there is no drainage from the general surface of the hill. I think the best pools, some of them perhaps hardly a yard square, are where the supplying surface has not sufficient soil to support anything but a few mosses and lichens, or where a great part of it is naked. It will easily be conceived that in such circumstances the water, in fine weather, becomes very warm. In summer a great deal of this dries up, but there still remain deep hollows, whose area, instead of occupying a fourth, is reduced to a twentieth of the receiving surface, and here the plants find a refuge. In these little pools we find great abundance of *Buliardia Vaillantii* and *Ranunculus nodiflorus*, two plants which are hardly found, or are extremely rare elsewhere. *Delphinium Consolida*, which is common in the corn through great part of France, was coming into flower, and *Medicago apiculata* had sufficiently formed its very characteristic legumes. *Veronica spicata* begins to exhibit its spikes; *V. verna* is pretty well over. *Festuca uniglumis* is abundant in the loose sandy parts, *Cynanchum Vincetoxicum* everywhere; and so is *Asperula tinctoria* in this part of the forest, although it is a plant generally rare. *Fedia carinata* and *olitoria* have made way for *F. auricula*, which is now the predominant species. The other plants were :—

<i>Trifolium rubens</i>	<i>Phalangium ramosum</i>	<i>Galium leve</i>
<i>Genista sagittalis</i> [there	<i>Sedum villosum</i>	<i>Inula hirta</i>
<i>Orchis ustulata</i> , here and	<i>Tillæa muscosa</i>	<i>Gypsophila muralis</i>
<i>Phyteuma orbiculare</i>	<i>Helianthemum umbellatum</i>	<i>Lychnis viscaria</i>
<i>Campanula persicifolia</i>	out of flower	<i>Phalangium Liliago</i>
<i>Geranium sanguineum</i>	<i>Orobis niger</i>	<i>Ranunculus Chærophyllus</i>
<i>Globularia vulgaris</i>	<i>Vicia lutea</i>	<i>Thesium intermedium</i> ?
<i>Epipactis Nidus-avis</i>	<i>Trifolium strictum</i>	<i>Dianthus carthusianorum</i>

In the latter part of my walk I met with *Sesleria cærulea*.—

This plant is abundant on the limestones of the North of England, but does not occur, so far as I know, on those of South Wales or of the West of England. It is not met with on our chalk hills, but is abundant on those about Rouen. At Dreux, still on the chalk hills, it is scarce. The station at Fontainebleau belongs, I think, to the calcareous beds overlying the sandstone. The '*Flore du centre de la France*,' by A. Boreau, gives habitats still more to the south.

The 20th was fair, though cloudy; but the rain of yesterday, followed by a wet night, had left both grass and woods full of water. Still following the advice of M. de Jussieu, I set out through the gardens of the chateau to reach the Mail de Henri Quatre. I went up a ridge of barren hills on the left, which I erroneously supposed to be connected with the *Mail*, but found nothing on them. Afterwards, not understanding what was meant by the word *Mail*, I crossed it without knowing, still supposing the term to belong to a crest of rocks beyond me. However, I gathered in crossing it most of the plants which are said to be found on the Mail, viz., *Ononis Columnæ*, *Arenaria triflora* (a variety of *A. grandiflora* according to Duby), *Helianthemum apenninum* and *Fumana* (or *procumbens*), and *Teucrium montanum*.

On leaving the Mail and crossing to the opposite crest, I found there abundance of those small *mares* or pools, but the only rare plant in them was *Ranunculus tripartitus*. Some tufts of this species growing quite out of the water, although this was high from the late rains, producing hardly any but the capillary leaves, and completely covered with flowers, were very beautiful. On a later occasion, the 5th of August, I met with abundance of *Elatine hexandra* in these pools. Thence I descended into a large barren plain — *Plaine du Chêne Brulé* — which is crossed by the road to Lyon, where I added *Ranunculus gramineus* and *Scorzonera austriaca* to my collections, but unfortunately both completely out of flower, and almost losing their seeds. Here also grow *Trifolium montanum*, *Alyssum montanum*, *Epilobium angustifolium*, *Lactuca perennis* and *Teucrium montanum*. Other plants in this part, which are generally diffused in the forest, are the following.

<i>Trinia glaberrima</i>	<i>Viola canina</i> , var.	<i>Phalangium Liliago</i>
<i>Statice plantaginea</i>	<i>Arundo Epigejos</i>	<i>Silene Otites</i> , an eastern
<i>Rubus plicatus</i>	<i>Helianthemum guttatum</i>	plant with us
<i>Veronica Teucrium</i>	<i>Plantago arenaria</i>	<i>Arenaria setacea</i>
<i>Genista pilosa</i>	<i>Linum tenuifolium</i>	

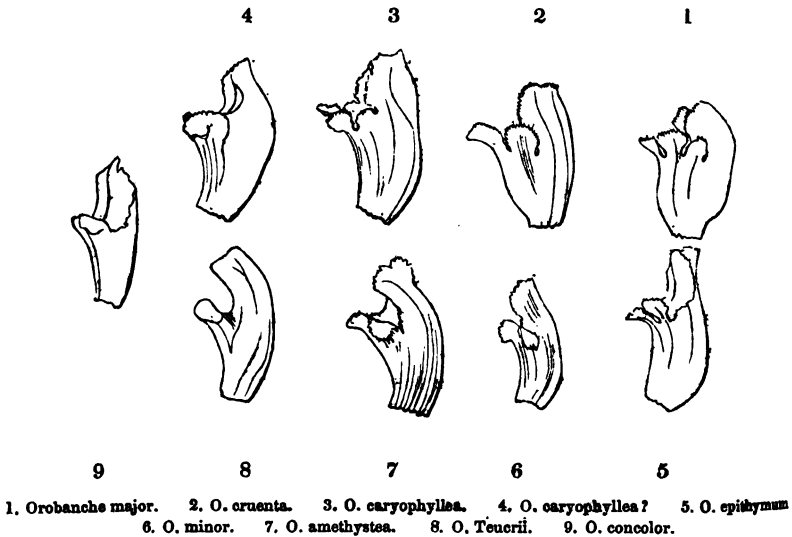
The *Orobanches* were very abundant and in good condition, but I

was not able to do much in determining the species. Koch, and after him Babington, depend much upon the nerves of the sepals, but of the species described by the former writer, as having only one or two nerves, I know nothing; and all our difficulties lie with the many-nerved species. Babington indeed gives to *O. rubra* only a single nerve, but he cites, though with a mark of doubt, Koch's *O. epithymum*; and Koch cites, under = *O. epithymum*, the figure of *O. rubra* in 'English Botany,' but with the addition—*pessima*, in which everybody will agree with him. As far, however, as it is possible to judge from such a figure, I should say that *O. rubra* and *O. epithymum* cannot be the same. In the *O. epithymum* of Fontainebleau, the nervature of the calyx is the same as in its allied species, that is, a distinct nerve to each division, and smaller lateral nerves or veins: I may say the same of a specimen of *O. rubra* from Staffa, given to me, I believe, by Mr. J. Hooker, now Dr. Hooker. I can make little more of the insertion of the stamens, which is always *near* and never *at* the base of the corolla. The hairiness or villosity (without glands) at the inner base of the filaments, may serve to separate *O. major* from other species, and *O. concolor* has only scattered hairs. In *amethystea* these hairs are very short and close, and limited in their extent. All the species seem subject to have glandular hairs upon the upper part of the anthers and of the styles, which, in the latter part, sometimes extend on to the germen. The yellow stigma is perhaps of importance, but unfortunately we lose this in drying. I have given on the next page a few forms of corolla, which perhaps are as useful as most points in determining the species.

1. *O. major*. Fontainebleau, on broom. Stigmas yellow.
2. *O. cruenta*. Dreux, on *Hippocrepis comosa*.
3. *O. caryophyllea*. Fontainebleau. Flowers nearly pink: stigmas purple.
4. *O. caryophyllea*? Orleans, growing among grass and bushes. It had the clove smell, but this is occasionally met with in several species.
5. *O. epithymum*. Fontainebleau, on *Thymus Serpyllum*. Stigmas purple. I could always readily distinguish this by the strong venation of the petals, but the veins were marked in colour rather than in substance, and have disappeared in drying. The upper lip was sometimes cloven, sometimes entire, and even now and then trifid.
6. *O. minor*. From near Guildford.
7. *O. amethystea*. Blois, on *Eryngium campestre*. Stigmas purple.

A beautiful plant, easily known by its dense spikes and the long points of its bracteas and calyces.

8. *O. Teucrii*. Fontainebleau, on *Teticnium montanum* and *Chamaedrya*. Snuff-coloured, nearly veinless. The insertion of the stamens is higher than in *O. epithymum*, and the lips of the corolla are more separate. The botanists of Paris seem disposed to unite these species.
9. *O. concolor*. Fontainebleau. Corolla and stigmas yellow. I saw only two specimens, and could not ascertain to what plant they were attached. They agreed perfectly with Boreau's description, — 'Flore du Centre de la France,' p. 344.



From this plain I again ascended a hill on the right of the road to Reclose, where I found abundance of *Coronilla coronata* and *Linum tenuifolium*: and passing that road and the hollow in which it runs, ascended the *Rocher des Putaines*, now more delicately called the *Rocher des Demoiselles*, on the top of which again are some *mares*, which were not productive. Among these rocks, and in other similar places, I noticed *Pyrus Aria*, but did not fall in with any trees of *P. latifolia*, which is said to occur in the forest, but which, however, from specimens in the French herbarium of the Jardin des Plantes, appears to be the same as *P. hybrida* of the 'Flora Britannica,' 534.

On the 21st I set out on the road to Melun, and turning to the right examined a detached ridge, which, as usual where there are no *mares*

was unproductive; and then descended towards the river. The lower strata seem here to be chalky, and the Orchideæ were abundant, chiefly about and beyond a little pool, where a by-road turns up from the river towards Samois. They were *Epipactis rubra* in great beauty, *E. atropurpurea*, *Ophrys arachnites*, *O. apifera*, *Listera ovata*, *Aceras anthropophora* and *Orchis pyramidalis*, all growing together and abundant. On a little hill descending from this pool, the banks were covered with *Equisetum hyemale*.

I did not find *Euphorbia Lathyris*, which is said to grow at Valvins. In my way back I met with *Althæa hirsuta*. Afterwards I climbed up a sandy ridge, the *point de vue* of Queen Amelia, and a very beautiful one it is, commanding a variety of rock and wood, of barren slopes and of the cultivated valley beneath. The other more common plants of the walk were : —

<i>Monotropa Hypopitys</i>	<i>Vicia lutea</i>	<i>Sedum Cepæa</i>
<i>Poa compressa</i>	<i>Ajuga Chamæpitys</i>	<i>Ornithogalum pyrenaicum</i>
<i>Festuca uniglumis</i>	<i>Crepis tectorum</i>	<i>Campanula persicifolia</i>
<i>Rubus affinis</i>	<i>Astragalus glycyphyllos</i>	<i>Orobanche epithymum</i>
<i>Linum tenuifolium</i>	<i>Gentiana cruciata</i> , not in fl.	<i>Plantago arenaria</i>

These were the three walks at Fontainebleau recommended by M. de Jussieu, except that, omitting my earlier aberrations, I ought to have returned, after finding the Orchises, to the new bridge at La Madelaine, and crossed the Seine to the *Bois de Champagne*. There is, however, a fourth walk to be made, which is very interesting: this is to Franchard, which I visited on the 22nd. The multitude of rocks in this direction is very great, and they are so like each other, and so broken and irregular, that it is a perfect labyrinth, from which it is difficult for a person unacquainted with the forest to extricate himself. The directions, which are very numerous, often serve to increase the perplexity. One finds, on coming into a beaten track, a post, on which is written, "Route allant à Fontainebleau," but nothing to mark in which direction Fontainebleau lies. It is true that the post, in such a case, is usually put on that side of the cross road which is nearest the place specified, but it is not always so, and a person trusting to this rule might be sometimes woefully deceived. Then we have "Route allant à la Route rond," which "route rond" forms a circle of considerable diameter, and one part might lie just in our way, and another very much out of it. The best Botany on the road is, in general, not among the rocks, but on some dry and barren banks where the sandstone seems to be capped with a calcareous deposit. Here grow : —

Trinia glaberrima
Teucrium montanum
Ononis Columnæ
Inula hirta

Hypochæris maculata
Epipactis rubra
Euphorbia Esula

Arenaria setacea
Helianthemum apenninum
H. Fumana

About Franchard are numerous *mares*, as usual upon the top of the hill. In one of these, beyond the *Rocher qui pleure*, I met with an abundance of Bulliarda: *Ranunculus nodiflorus* and *Juncus pygmaeus* also occur, and in the same neighbourhood likewise grows *Elatine hexandra*. On a former occasion I recollect to have observed *Pilularia*. In this part also, in the largest *mare*, and at a very short distance from Franchard, *Airopsis agrostidea* is found, but I was too early to hope for it at this time, and on a later occasion (August 4th) I was equally unsuccessful. The *Rocher qui pleure* is a rock hollowed out beneath, from which a few drops of water continually proceed for the greater part of the year. It is not easy to determine whence this water proceeds, as there seems but little extent at top from which it could receive supplies, and the small pools which existed when I was there, would be dried up in a few days of fine weather. Opposite to this, on some rocks which are perhaps kept moist by some infiltration from the great *mare*, is *Asplenium lanceolatum*.

I was told, on what seemed competent authority, that the voiture (these small-stage carriages are not called diligences) set out for Malesherbes at 5, at half-past 5 and at 6. We started at ten minutes before 6, (no proof that 6 was not the appointed hour), and reached Malesherbes at 9. and I found myself very comfortable at a little inn called l'Etoile, at the entrance of the town.

(To be continued.)

ART. CLXXXIX.—*Rarer Plants observed near Coggeshall, Essex.*
 By JABEZ M. GIBSON, Esq.

THE following is a list of some of the more uncommon plants growing in the neighbourhood of Pattiswick, observed by myself in the course of the present summer.

If any of your readers should happen to take a botanical stroll into this neighbourhood, I should feel great pleasure in pointing out the localities of any of these plants, more particularly than can be described in a hasty list like the present; or of affording any information which lies in my power.

- Vicia Bithynica*. Hedge-row of a field called Blackwater field, near the hamlet of that name, plentiful.
- Dipsacus pilosus*. The Water-lane, abundantly.
- Geranium columbinum*. Hedge-banks in several places.
- *pyrenaicum*. Frequent by the road-side between Braintree and Coggeshall.
- Lathyrus Nissolia*. Dry hedge-banks, not unfrequent.
- Epipactis purpurata*. Three plants found in the west corner of Monks' wood.
- Galium tricornes*. Gravelly hedge-banks.
- Linaria spuria and minor*. Corn-fields, frequent.
- Gnaphalium sylvaticum*. Old gravel-pit near Blackwater.
- Iberis amara*. Corn-fields near Pattiswick church.
- Typha angustifolia*. Blackwater river.
- Papaver Argemone and dubium*. Corn-fields, not unfrequent.
- Dianthus Armeria*. Road-sides, not unfrequent.
- Paris quadrifolia*. Abundant in most of the neighbouring woods.
- Convallaria majalis*. Plentiful in Monks' and Nuns' woods.
- Myosurus minimus*. Corn-fields, frequent.
- Vinca major & minor*. Woods and hedges.
- Erysimum cheiranthoides*. Corn-fields, not unfrequent.
- Ribes nigrum*. Banks of Blackwater river.
- Hottonia palustris*. Common in ponds in Monks' wood.
- Cardamine amara*. Small rivulets and ditches, frequent.
- Rubus Idæus*. Gravel-pit near Blackwater.
- Scirpus sylvaticus*. Banks of Blackwater river and in bogs in the neighbourhood.
- Polygonum amphibium*. Ponds, occasionally.
- Achillea Ptarmica*. Banks of a pond near the church.
- Myosotis cæspitosus*. Common in some ponds in Monks' wood.
- Galeobdolon luteum*. Damp hedge-banks, not uncommon.
- Orobanche elatior*. Clover-fields, occasionally.
- Aquilegia vulgaris*. Plantations of fir near the church.
- Daphne Laureola*. Woods, not uncommon.
- Triglochin palustre*. Meadows by Blackwater river.
- Potentilla argentea*. Dry banks, frequent.
- Pyrus torminalis*. Monks' wood, occasionally.
- Prunus Cerasus*. Hedges and woods, not unfrequent.
- *insititia*. Hedges, but rarely.
- Carduus Marianus*. Gravelly hedge between Blackwater and Stisted.
- Senecio viscosus*. Gravelly banks on the common.
- Chlora perfoliata*. Sides of fields, occasionally.
- Chenopodium polyspermum*. Waste ground not uncommon.
- Castanea vulgaris*. Woods, not uncommon.

JABEZ M. GIBSON.

Pattiswick Hall, near Coggeshall,
Essex, October 24, 1843.

ART. CXC.—*Notice of 'The Naturalists' Pocket Almanack for 1844.'*
London: John Van Voorst, Paternoster Row.

FOR the information of such of our readers as may not have formed an acquaintance with this useful little almanack during the first year

of its appearance, we may briefly state that in addition to the calendar, length of day, and the rising and setting of the sun and moon, the days and hours of meeting of the various scientific societies of the metropolis are regularly specified, together with short notices of the arrival and departure of birds, the flowering of plants, the appearance of insects, and other interesting remarks relating to Natural History. But the principal feature in the present year's almanack is the best and most compendious descriptive list of the British ferns and their allies that we have yet met with. In the nomenclature of this list we observe several departures from that adopted by Mr. Babington in his 'Manual of British Botany.' For instance, in the *Equisetums* the nomenclature and arrangement proposed by Mr. Newman in our own pages are followed. In the ferns we find some striking novelties. Among these is a full description of the involucre of *Pteris*: we quote the entire character of that genus.

"*PTERIS*, *Linneus*. — Mid-vein distinct, lateral veins anastomosing at margin forming a marginal vein. Involucre attached to inner side of marginal vein, linear, its margin split into capillary segments; capsules attached in a linear series to marginal vein, exterior to involucre; epidermis prolonged bleached reflexed split into capillary segments and covering capsules in the manner of an involucre."—p. 11.

The second point to be noticed appears at first sight to be a daring innovation; on reflection, however, we feel inclined to admit it as being a more natural arrangement than the old one. We allude to the removal from the genus *Polypodium* of the species *Dryopteris*, *calcareum* and *Phegopteris*, thus leaving *Polypodium vulgare* as the only British representative of its genus. The three rejected species, together with *Oreopteris* and *Thelypteris*, form in the list the first division of Bory's genus, *Lastræa*, characterized by having the "Clusters of capsules on all branches of lateral veins," not on the anterior branch only, as in *Polypodium* and *Lastræa* proper. The next thing we shall notice is that the three plants *Lastræa spinosa*, *dilatata* and *recurva* are raised to the rank of species, and as such now described for the first time in an English work. We quote the descriptions.

"9. *L. spinosa* (Roth). *Lastræa dilatata* linear type Newm 61 fig. Bab 386. Rhizoma very stout, slowly but extensively creeping; stem as long as frond, clothed sparingly except at the base with *broad rounded pale brown diaphanous scales*; frond nearly erect, elongate linear pinnate, pinnae rather distant (1—8 pairs of equal length, *the lower pair neither longer nor shorter than the rest*) winged pinnate; pinnules at the base of pinnae separated from the midrib by a deep notch, toward the apex of pinnae decurrent, all lobed, the lobes serrated and spined; divisions at apex of frond narrow, their terminations acute, all divisions of frond *flat*; involucre nearly circular, its margins *waved not torn nor furnished with teeth or stalked glands*; clusters of capsules circular

crowded, sometimes confluent, confined to the upper portion of the frond. This common fern was included by Linneus under his *Polypodium cristatum*, and by Muller in the 'Flora Danica' under his *P. spinulosum*, but the first intelligible description as a separate species is in Roth's 'Flora Germanica'; it is not the *Aspidium spinulosum* of Willdenow, Schkuhr, Decandolle, Smith, Hooker or Mackay, all of which are probably referrible to the next species. Common, marshes and woods; in moist woods it is more luxuriant, only semierect, and has a somewhat different aspect. Mature in September.

"10. *L. dilatata* (Hoffmann). Newm 58 fig. Bab 386, *Aspidium spinulosum*, *dilatatum* and *dumetorum* Sm iv 279, *Aspid. spinulosum* Hook 440, Mack 340. Rhizoma tufted; stem very stout, nearly as long as frond, densely clothed with long pointed scales which are dark brown along the middle but pale at the edges; frond glandular very large deep green drooping ovate-lanceolate pinnate, lowest pair of pinnae shorter than 2nd 3rd 4th or 5th, pinnae pinnate; pinnules pinnate or pinnatifid, ultimate divisions serrated spined, all divisions of frond convex; involucre nearly circular fringed with stalked glands; clusters of capsules circular distinct covering every part of frond: mature in September. Common everywhere.

"11. *L. recurva* (Bree). *L. dilatata* concave type, Newm 61. Rhizoma tufted; stem as long as frond woody clothed with long narrow lacinate scales; frond triangular drooping elegant pale green pinnate, lower pair of pinnae longest stalked, all pinnate; pinnules pinnate or pinnatifid, all divisions of frond concave; involucre nearly circular jagged at its margin without stalked glands; clusters of capsules round crowded, covering every part of frond: mature in September. Abundant in Ireland and Cornwall; occurs in Cumberland, Devonshire, Sussex, &c."—p. 23.

In the genus *Athyrium*, the convex form of *A. Filix-femina* appears as a species under the name of *A. rhæticum* of Roth, and, with a mark of doubt, as the *Polypodium rhæticum* of Linnæus; a new species of *Athyrium*—the *A. molle* of Hoffmann—is also introduced, of which the following is the description.

"† 3. *A. molle* (Hoffmann). Stalk still shorter [than in *rhæticum*], its scales broad and shorter; frond semi-erect bright green ovate-lanceolate pinnate, pinnae pinnate, their midrib winged, lower pair very distant short deltoid deflexed; pinnules flat united by wing of midrib lobed, lobes 2—3 toothed; clusters of capsules distinct 5—7 pairs: mature in September. Common in damp places."—p. 26.

The new British *Cystopteris*, the *C. montana* of Link and Presl, has already been described and figured in our pages, (Phytol. 671).

The above are the principal points of interest which have struck us in going through this useful list; if naturalists approve of the plan, it is to be followed in subsequent years by similar lists of British quadrupeds, butterflies, Orchidæ, &c.

ART. CXCI.—*Supplement to the List of Saffron-Walden Plants,*
(Phytol. 408). By G. S. GIBSON, Esq.

- **Thalictrum flavum*. At Sawston.
Ranunculus parviflorus. Road-side at Sampford.
Corydalis lutea. Old walls, Walden, naturalized.
Alyssum calycinum. One plant found in a field between Linton and Hildersham.
Linum perenne. Chalky banks by the road between Chesterford and Bourne bridge.
Geranium pyrenaicum. Waste ground, Walden.
 ——— *columbinum*. Clover-field near Thaxted.
 **Erodium moschatum*. Once found at Walden.
Hypericum humifusum. Thriplow heath.
Ononis antiquorum. Road-sides, frequent.
Medicago denticulata. In a clover-field at Walden, probably introduced.
Trifolium arvense. Near Newport, not common.
Lotus tenuis. Little Walden park &c.
Astragalus hypoglottis. Thriplow heath and near Babraham.
Spiræa salicifolia. Road-side at New Sampford, probably the outcast of a garden.
Ceratophyllum demersum and *Myriophyllum verticillatum*. Ditches at Sawston.
Apium graveolens & *Smyrnium Olusatrum*. Marshy meadows near Sawston.
Caucalis daucoides. Corn-fields near Chris-hall grange.
Cœnanthe pimpinelloides. Meadows at Sawston, in fresh-water marshes.
Epilobium palustre. Ditches at Wimbish and Sawston.
Ribes nigrum. Banks of a rivulet at Wenden, some distance from houses.
Lonicera Caprifolium. Thickets at Audley End, probably planted.
Galium uliginosum. Moist meadows at Chesterford.
Crepis setosa. This plant, hitherto unobserved in Britain, was found sparingly in a clover-field near Wimbish, and had probably been introduced with the clover-seed.
Apargia hirta. Meadows at Sawston.
 **Leontodon palustre*. Sawston fen.
Hieracium sylvaticum. How wood, Littlebury.
Centaurea solstitialis. A few plants were found this year in two clover-fields at Walden, introduced with the clover, which was grown from foreign seed
Senecio cruceifolius. Road-sides, not uncommon.
 **Pulmonaria officinalis*. Near a wood at Horseheath.
Myosotis sylvatica. Woods near Walden, frequent.
 ——— *collina*. Dry ground near Newport.
 **Pinguicula vulgaris*. At Sawston.
 **Utricularia vulgaris*. Thriplow heath.
Veronica polita? Corn-fields, Walden.
 *——— *scutellata*. At Sawston.
Mentha arvensis. Corn-fields &c. not uncommon.
Melissa officinalis. Margin of a rivulet at Clavering.
Galeopsis versicolor. One specimen found at Sawston.
 **Lamium maculatum*. Audley End.
 **Lysimachia vulgaris*. Near Sawston.
Samolus Valerandi. Meadows at Sawston.
Rumex viridis. Shady places, frequent.
Salix acuminata. Road-side at Hadstock
 ——— *aurita*. Audley End &c.
 ——— *decipiens*? Near Walden.
 ——— *ferruginea*, *rugosa*, *rubra*, *Smithiana*, *undulata*. Audley End, according to Leefe's 'British Willows,' fasc. I.

- Alisma ranunculoides*. Ditches at Sawston
 **Sparganium simplex*. Ditto at Chesterford
Lemma gibba and *Potamogeton pusillus*. At Sawston.
Lilium Martagon. In an old coppice hedge and in a wood at Sampford, where it has grown for at least thirty years, and probably a much longer time.
 **Muscari racemosum*. Near Sawston.
Triglochin palustre. Wendon & Sawston.
 **Epipactis palustris*. At Sawston.
- Schœnus nigricans*. Abundant at Sawston.
Scirpus sylvaticus. In a rivulet at New Sampford.
 **Cladium Mariscus* and **Eriophorum pubescens*. At Sawston.
Carex muricata. Near Chesterford.
 — *Cideri* and *ovalis*. Meadows at Sawston.
Lolium multiflorum. Fields occasionally.
Equisetum limosum. At Linton.
Asplenium Adiantum-nigrum. Old trees.

Those plants marked with an asterisk, I have not found growing, but have seen specimens which are stated to have been gathered in the localities specified.

Whether the *CEnanthe* found in fresh-water marshes will prove a new species distinct from *pimpinelloides*, is at present uncertain; but the specific differences between it and the salt-marsh plant appear slight.

Chenopodium rubrum and *Salix Hoffmanniana*, which are marked in the former list with a note of interrogation (*Phytol.* 413), have since been seen; the first at Sawston, the other at Audley End.

Tragopogon pratensis (*Id.* 411), should have been entered as *T. minor*, and *Habenaria bifolia* (*Id.* 414) as *H. chlorantha*. *Cuscuta europæa* has not been found here; the specimen on the authority of which it was inserted, was gathered some years ago, and proves on examination to be *C. Trifolii*.

I also feel some doubt as to whether *Luzula Forsteri* has been found here; and of a permanent locality for *Mentha viridis*.

G. S. GIBSON.

Saffron Walden, November, 1843.

ART. CXCII.—*Varieties.*

415. *Correction of an error in the description of Equisetum Telmateia.* In my description of this species (*Phytol.* 729) I have made this observation:—"Mr. Watson, in one of the passages above referred to, states that horses graze on it (*Phytol.* 588)." By a reference to this passage it will be seen that Mr. Watson remarks that "it is a notion among the rustics of Cheshire that horses get bogged by their endeavours to graze on this plant," &c. I beg to offer my thanks to Mr. Watson, for calling my attention to this inaccuracy.—*Edward Newman; Hanover St., Peckham, November, 1843.*

416. *What is the Polypodium fragrans of Linneus?* This fern is absent from nearly all our descriptive lists. Wahlenberg, Roth, De-

candolle, Sadler, Smith, Hooker, Dietrich, Babington, and many others, appear to take no notice of it. It seems *highly* probably that the fern did exist formerly, and *scarcely* probable that it has become extinct: it will be recollected also that our two *fragrant* ferns, *Lastrea rigida* and *L. Oreopteris*, are absent from those works in which *P. fragrans* is described, so that it *may possibly* be one of these. I have endeavoured to collect all the evidence within my reach, as to the claims of *rigida* or *Oreopteris* to the title of *fragrans*; and before immolating a well-established name on the altar of priority, I shall feel extremely obliged to any botanist who can give me information as to the *present existence* of the Linnean *Polypodium fragrans*. *Id.*

417. *On assisting Nature in the dissemination of Plants.* Although I concur in Dr. Bromfield's observation that this practice is "highly reprehensible" (*Phytol.* 806), and admit such to be *the rule*, yet I cannot help pleading somewhat earnestly for what I consider *the exception*. The *rule* appears to me to bear on all those cases in which the act is committed for purposes of deception, and the *exception* on those cases in which exotic plants are avowedly introduced to beautify our woods and wilds. I have, I believe, succeeded in establishing three beautiful North-American ferns — *Sitotobium pubescens*, *Onoclea sensibilis* and *Cystopteris bulbifera*, and I think he were a slender botanist who fell into the error of supposing them natives of Britain.—*Id.* December, 1843.

418. *Note on Oxalis corniculata.* As Devonshire is, I believe, considered the strong hold for *Oxalis corniculata*, as an English plant, the following notice of it may not be quite devoid of interest to your readers. Though I have never found it truly wild, that is, in such places as its more elegant congener loves to inhabit, yet in several situations where ground has been recently ploughed or dug up, it has made its appearance. Here (Lympstone) it has sprung up spontaneously in a garden where it was unknown before the spade brought the seeds to the surface; this also happened in a recently ploughed field adjoining: and in the rich earth procured for a melon-bed, it grows most luxuriantly, in fact it is a troublesome weed; this I have also known to occur in a garden at Teignmouth. That the seeds of plants may lie dormant for a long time, and yet, when some accidental circumstance favours their growth, may burst their covering and appear where we should least expect them, is well known, and has been before proved in the pages of 'The Phytologist;' but the fact of these seeds being there to germinate, proves one of these two things,—that the plant in question was either formerly much cultivated in South Devon, and so naturalized, or that it is one of the indigenous products

of our soil; which of the two deductions is the right one, I do not feel myself competent to determine, though as regards the first, I can say that if it was formerly a common plant in gardens, it is not so now by any means, and I have not once seen it in a state of cultivation in the neighbourhood.—*Robert C. R. Jordan; Lympstone, Nov. 15, 1843.*

419. *Note on Mr. Gibson's Hieracium hypochaeroides.* My former remarks upon this plant (Phytol. 801) are fully confirmed by the authentic specimen, for the inspection of which I am indebted to the editor of 'The Phytologist.' It is an identical species with the specimens of Mr. Ward, Mr. Tatham, Mr. Gardiner, and others mentioned in my former communication. In his parcels of the present year, Mr. Gardiner labels the plant "*Hieracium murorum*, *L., β. pulmonarium*, *Sm.*" I fully concur with Mr. Gardiner in looking upon it as a form of *H. murorum*, though not the *H. pulmonarium* of Smith. The *H. maculatum* of 'English Botany' scarcely differs, except by its more numerous flowers and stem-leaves, and by the stronger teeth of the leaves. These characters are variable in the other forms of *H. murorum*, in their wild states, and are commonly increased by cultivation. In regarding *H. maculatum* as a luxuriant state of *H. murorum*, rather than joining it with *H. sylvaticum*, I am probably almost alone.—*Hewett C. Watson; Thames Ditton, November 20, 1843.*

420. *Mr. Bowman on the specific identity of Hieracium murorum and H. maculatum.* Believing this union to be correct, although in opposition to the views of Hooker and Babington, I crave a corner in 'The Phytologist' for the following unpublished note, furnished to me by the late Mr. J. E. Bowman. It was only this day that I met with the note, in a list of localities sent for the 'New Botanist's Guide,' about the year 1834; but being written under the head of "*H. murorum*" (a species too common for introduction into the Guide), it had been passed over, and quite forgotten if ever read. "After long and repeated observations on numerous Welsh specimens from various localities, I am satisfied, notwithstanding what is said in 'English Flora,' that this species and *H. maculatum* cannot be separated. Neither the shape of their leaves, nor their spots, nor the solitary leaf on the stem, can be relied on. I have specimens that precisely agree with Smith's *H. murorum*, only the leaves are spotted; and others that correspond with his *H. maculatum*, except that the stem is solid and has only a single leaf. * * I have some specimens [of a *Hieracium*] from the Breidden, which it is next to impossible to identify, and I have sometimes thought they may be a new species." So entirely had this note escaped proper attention at the time, that I took

the locality of Breidden Hill, from the 'English Flora,' and printed it for "*H. sylvaticum, maculatum.*"—*Id. November 27.*

421. *Note on Carex paradoxa.* Having observed in your last number an allusion to the existence of *Carex paradoxa* near York (Phytol. 779), I am induced to send you a short account of its discovery. It was first found by myself in Heslington fields, in April, 1841, and a few weeks afterwards in Ascham bogs, an immense marsh about three miles S. of York; in both which localities it grows in the greatest abundance. At that time I referred it, though doubtfully, to *C. teretiuscula*; but from this I observed that it differed in its mode of growth (forming compact tufts or stools like those of *C. paniculata*), in its larger panicle, more numerous striated fruit, &c., and I thought it not improbable that it might prove to be the *C. paradoxa* alluded to in Hooker's Flora under *C. paniculata*. I possessed, however, neither specimen nor description of that species with which to compare my plant, and my attention has been since then so completely engrossed by other departments of Botany, that I neglected to take the opinion of any of my friends capable of deciding on such a subject. Mr. Borrer, whom I had the pleasure of seeing in York in the early part of September last, first informed me that my plant was identical with the Irish *Carex paradoxa*; and more lately I have received similar testimony from Mr. Wilson, who was, I believe, the first to make out Mr. D. Moore's specimens. In Heslington fields, *Carex paradoxa* is accompanied by *C. cæspitosa* (*true*), *C. acuta*, *C. fulva*, *C. dioica* &c. In some parts of Ascham bogs the vegetation is almost entirely composed of *C. paradoxa* and *cæspitosa*, but in the intervals between the tufts it is not uncommon to find a few scattered plants of *C. filiformis*, a plant which grows abundantly in bogs on some of our moors in the Vale of York. *Carex paniculata* grows also in Ascham bogs, and attains an enormous size, but I do not recollect having seen it growing side by side with *C. paradoxa*. I believe the latter matures its fruit two or three weeks earlier than the former. We have not the true *C. teretiuscula* nearer than Terrington Carr, which is fifteen miles N. of York.—*Richard Spruce; York, November 21, 1843.*

422. *Note on Carex axillaris.* This plant does *not* grow in Heslington fields, as has been supposed (Phytol. 199), but it occurs in considerable quantity at the margins of brick-ponds on Hob-moor, near this city, where my attention was first directed to it by my friend Mr. O. A. Moore, in June, 1842. The Carices growing along with it are *C. remota*, *vulpina*, *Pseudo-Cyperus*, &c.; of these, *C. vulpina* is by far the most like *C. axillaris* in habit, but the *concave surfaces*, and

consequently *very acute angles* of the stem, will always suffice to distinguish the former, without any other characters. I am not at all surprised that *C. axillaris* and *divulsa* have sometimes been confounded, which might very easily happen if the botanist were guided solely by the very meager descriptions in Hooker's Flora; and the two species really differ very little in external aspect. Mr. Borrer tells me that *our C. axillaris, at least*, is not *C. boenninghausiana*.—*Id.*

423. *Note on Veronica triphyllos.* This interesting little plant was discovered in the spring of 1842, by Mr. Weatherill of this city, near the village of Nether Poppleton, and it is perhaps generally distributed over the sandy district which extends to a considerable distance westward of York, as I have observed it during the past spring and summer in three or four stations some miles distant from each other. Near Poppleton it grew abundantly in a stubble-field, as well as in an adjoining sandy lane amongst *Allium oleraceum*; but the place where I have seen it in the greatest luxuriance, is in the lane leading from Acombe to Ascham, where a quantity of brambles and briers had been cut away. *Alyssum calycinum* has also been discovered by the same gentleman, growing with the *Veronica*, but in very small quantity.—*Id.*

424. *Veronica Buxbaumii* has been found in several places near York during the last three years, but only by two or three plants at a time, and as I have not heard of its being observed in the same station for two consecutive seasons, I conclude that it is an introduced plant.—*Id.*

425. *Note on the Manchester Carex.* I am led to believe from the following circumstances, that the statement of Mr. Gibson, wherein he regrets that the locality of his *Carex pseudo-paradoxa* is a secret (*Phytol.* 778), has reference to a conversation between Mr. Gibson and myself; may I therefore be allowed, through the medium of your valuable journal, to vindicate myself from such an imputation? Mr. Gibson called on me to enquire if I would go with him to gather the plant; but at the time I was so engaged in business that it was not in my power to do so. He then asked of me the locality, and if I could give him particular directions? Now, as he was a stranger to that part of the country, and the plant by no means easily to be found, I said I feared I could not, and told him the reason; but said I could give him a number of specimens, as I had gathered it largely. After some conversation on the subject, he said if *I had* given him the locality, so that he could have found the plant, it was his intention to have cut it all down, if possible. On this ground I felt myself justified in withholding all further information; for although no locality

ought to be kept secret, when the knowledge of it might prove of advantage to science, or contribute to the pleasure of a fellow-student, yet after such a threat, was I not justified in retaining the information? — *George Crozier* ; 111, *Shudehill, Manchester, November 23, 1843.*

426. *Note on the Botany of France.* I have been highly pleased with Mr. Woods' paper on the Botany of France (*Phytol.* 785). There is no place to which an English botanist is so likely to go, and even to fire-side travellers it must be pleasant to compare the Flora of an opposite shore with our own. I will just mention, that on Mont St. Katherine near Rouen, I found, two years ago, plenty of *Bupleurum falcatum*. The two plants that most attracted my eye between Havre and Paris were *Mercurialis annua* and *Eryngium campestre*. — *Geo. Sparkes* ; *Bromley, in Kent, December 5, 1843.*

427. *Note on Potass and Soda produced by the ashes of Plants.* It has been for a long time the general opinion, that the ashes of inland plants produce potass, of maritime plants soda. Whether maritime plants removed inland would continue to secrete soda, is an interesting enquiry, and is a point on which Sir James Smith and Prof. Liebig, although they do not absolutely contradict each other, can scarcely be said to agree. While things are in this uncertain condition, I have been much astonished at perusing Hartwig's analysis of the ashes of inland plants, and observing the large proportion of soda which he professes to have found in them ; for example : —

	Carb Potass.		Carb. Soda.
In Beech wood,.....	11.72	12.37
Hanoverian tobacco,	0	1.61
Bean-straw,	13.32	16.06
Pea-straw,.....	4.16	8.27

It would be well if some English chemist were to repeat these experiments.—*Id.*

428. *Note on Agarics.* I have eaten, this season, *Agaricus personatus* and *nebularis*. The former, which is occasionally eaten, is not very pleasant; but the latter I can highly recommend. I have scarcely found a single specimen of *Agaricus deliciosus* this season. Those of your readers who have paid no attention to Fungi, may be interested in knowing that by taking an Agaric not quite full grown, cutting the stalk off, and placing the top on a sheet of white paper, the gills downward, they will obtain a copious supply of sporules. As in most Agarics these are white, coloured paper is the most appropriate. The existence of ammonia in ketchup may be shown by adding quicklime to it. The ammonia may be recognized by its smell, or by holding

over it a piece of litmus paper which has been partially reddened by an acid.—*Id.*

429. *Note on Aspidium spinulosum.* I feel obliged to your correspondent Mr. Forster (Phytol. 814), for correcting an error which I inadvertently fell into (Id. 774) in stating that "the application of the specific name of *spinulosum* to a British fern (first adopted, I believe, by Smith and Sowerby in 'English Botany') originated in error,"—a blunder this, on my part, the more strange, as it is distinctly stated in the letter-press of 'English Botany,' that "Dr. Withering first made it known as a British plant." In my own defence, however, I must observe, that it is not recorded in Withering's second edition, printed in 1792, to which alone I had access. My principal object in the remarks I made, was to warn botanists not to take up their notions about *Aspidium spinulosum* from the figure and account in 'English Botany,' where an error certainly is committed, Mr. Mackay having avowed to me that the plant there represented turned out to be only a young or starved specimen of *A. dilatatum*. I am quite aware that Mr. Dickson "nowhere published *A. spinulosum*;" but I know that he was well acquainted with the fern, as well as with what I have called *recurvum*, and that he maintained them to be distinct species, and each of them distinct from *dilatatum*. For distinction's sake I have been in the habit of calling this much-disputed species "*Dickson's spinulosum*," because at the period when I conversed with him on the subject, he was the only botanist with whom I was personally acquainted, who appeared to me to have an accurate knowledge of the plant in question.—*W. T. Bree; Allasley Rectory, December 8, 1843.*

430. *New locality for Saxifraga crenata*, Bab. C. C. Babington, in his 'Manual of British Botany,' considers this plant a doubtful native at Hezleden Gill; but when he was here this autumn, and visited the place, he was convinced of its being indigenous. C. C. Babington and your readers in general will be glad to learn that since then the Rev. John Howson has found the same plant at Lynn Gill, but not in such profusion as at Hezleden Gill. Lynn Gill is about four and a half miles from Hezleden Gill, and about thirteen miles from Settle; the plant is found on the north-east side of the valley, about twenty yards above the waterfall; the high range of hills, part of the Penine chain which passes through Yorkshire, separates the two localities.—*John Tatham, jun.; Settle, 12th Mo. (December) 7, 1843.*

431. *Note on Hieracium prenanthoides.* C. C. Babington, when at Settle, found one plant of *Hieracium prenanthoides*, since then I have seen six others; they are all on the east bank of the Ribble near the

village of Stainforth: *Hieracium Lawsoni*, *Smith*, is abundant at the same place.—*Id.*

432. *Observations on the dissemination of Seeds of Plants.* As a question has been raised by Dr. Bromfield, whether it be right to "assist nature in the dissemination of plants" (*Phytol.* 806), and this being a question on which it seems desirable that botanists should make up their minds, I think it may not be amiss to discuss it at greater length than has been done by that gentleman, especially as he has taken the negative side. The main reason given by Dr. Bromfield for entertaining this opinion, is the confusion which would be created in Vegetable Geography, if botanists were to take upon themselves to scatter seeds. It is true that another reason is glanced at, but in reference to this perhaps I may be allowed to say, that I cannot see any greater moral iniquity in sowing seeds to gratify the eye, than in sowing them to gratify the palate. With respect to Vegetable Geography, the most interesting part is that which treats of the affinity of certain plants for certain soils; and it appears to me that this is not only *not* endangered by the course which Dr. Bromfield denounces, but that it is assisted rather than otherwise. Thus, the seeds of a plant found usually on a gravelly or sandy soil, are perhaps sown by the botanist on a chalky soil, where, if they germinate and flourish, an error may be corrected by its being shown that such a plant is not so peculiar to a sandy or gravelly soil, as that it will not flourish upon a chalky one; on the other hand, if the seeds perish, or if the plants produced from them do not flourish, there is at least strong presumptive evidence that the chalky soil is not adapted for their growth. In either case, it is not likely that a botanist will be led into an error in this respect. As to the geographical distribution of plants, a study which, when separated from the other branch of the subject, is a matter of much less interest, it can never, I think, be endangered by the occasional assistance afforded by botanists in the production of plants, especially if they make known (as they should do) the fact of their having given such assistance; but even if this information were withheld, the fact of such assistance having been rendered would in most cases be apparent, especially if the plants disseminated are known to be otherwise peculiar to other countries. There is another objection stated by Dr. Bromfield, namely, that the working botanist is misled and disappointed, in finding that he has in reality only discovered an artificial station, when he had flattered himself he had met with a new natural one. It is true, that in such a case, the botanist will in all probability undergo some disappointment, and that this disappoint-

ment will most likely exceed the pleasure of finding the plant, and seeing it growing there, before and after he knows this. To prevent such disappointment as much as possible, care should be taken to make known the fact of the station's being an artificial one. Against the disappointment of the botanists of the day, however, is there not to be placed a large amount of pleasure to be derived by future botanists, from the possession of the naturalized plant, when the artificial station shall have become a natural one? Examples may easily be adduced of the pleasure derived by ourselves from such a source. *Impatiens fulva*, for instance, as is well known, grows in the greatest luxuriance along the banks of the river Wey, from considerably above Guildford down to the Thames at Weybridge, and even as low as Barnes (Phytol. 814). Now it is not probable that Vegetable Geography will ever be endangered by this fact, the plant being known to be of American origin: on the other hand, what a pleasure is it to the botanist to see this beautiful plant luxuriating in this country, and to possess in his herbarium specimens of it gathered with his own hand! There may even be instances in which error as to the distribution of a plant might arise by not assisting Nature. For example: the only spot in Britain where *Cyperus fuscus* has been found, is a little marshy meadow surrounded by houses, near Walham-green, Middlesex. There can be no manner of doubt that at some time hence, perhaps even in one year, this meadow will be drained, and either built upon or ploughed up; and then, if no one has taken the precaution of removing some of the plants of *Cyperus* elsewhere, there will be a species lost to Britain. Are we to look on quietly and see our species become extinct before our very eyes, and not move a finger to save them? In such cases at least, may not every objection be made against *not* meddling, which is raised by Dr. Bromfield against the doing so? Indeed it is only just to future botanists to take care that we do not deprive them of pleasure in gratifying ourselves. It is, of course, not desirable that botanists should make a practice of scattering the seeds of any but the rarer plants; but I think we should never run the risk of allowing any species to become extinct. Neither do I think it would be advisable to naturalise many foreign plants: it is more interesting for each country to have its own species; and as far as the geographical distribution of plants is concerned, it might become difficult to register them, and to remember that such species were only naturalized, if this were done to any great extent. I can however see nothing to blame in a botanist's sowing (as has been done by Dr. Bromfield in the case of *Urtica Dodartii*) the seeds of a plant

which is found in but two or three places in a country, because there is no fear, even if this should ever be rendered a common plant, that a sufficient number of others will not remain rare, especially since it is likely that as the study of Botany extends, there will be a greater demand for rare plants. On the contrary, I think we have every reason to thank a botanist for his kindness in propagating a rare plant, not so much for the pleasure we ourselves are to derive from it, as for the pleasure it will in all probability afford to the botanists who are to succeed us. — *G. G. Mill; Kensington, December 9, 1843.*

Erratum. — Phytol. 813, line 9 from bottom, for "Lateral" read "Latent."

ART. CXCIH. — *Proceedings of Societies.*

MICROSCOPICAL SOCIETY OF LONDON.

November 15, 1843.—J. S. Bowerbank, Esq., F.R.S. &c. in the chair.

Mr. A. White read a paper describing the application of a lever movement to the stage of a microscope. It consists of a lever, to the shorter arm of which a ball is firmly screwed, moving in a socket formed by the upper plate of the stage, and a cup, which is a brass plate secured by two screws to that plate. This lever passes through a perforated ball, moving in a socket formed by an arm attached to an immoveable part of the microscope, and a cup formed and secured upon the arm, as in the former instance. This lever is about five inches long, having the longer arm equal to three and the shorter to one. This proportion however varies according to position, and hence the necessity of a perforation in the second ball to allow for it. This construction affords great facility of motion in every direction, and the range in the instrument exhibited was three quarters of an inch.

Mr. Jackson read a paper describing an improvement in the mode of applying a divided glass micrometer to the measurement of objects under examination, described by him in a former paper read September 3, 1841. The micrometer is mounted in a thin brass frame, which slides easily (under a spring) through slits in the opposite sides of the eye-piece, which slits, when not in use, are closed by a quarter revolution of an internal tube having similar slits. Its divisions are $\frac{1}{10}$ of an inch apart, with one of the spaces divided into five by finer lines, which, as they may be readily brought by the sliding of the micrometer into contact with the magnified edge of the object to be examined, afford great facility of measurement. Mr. Jackson concluded with some observations relative to the mode of using this instrument, and of finding the value of its divisions under the various circumstances in which it may be employed.—*J. W.*

THE PHYTOLOGIST.

No. XXXIII.

FEBRUARY, MDCCCXLIV.

PRICE 1s.

ART. CXCIV.—*Researches in Embryogeny.* By W. WILSON, Esq.

(Continued from p. 735).

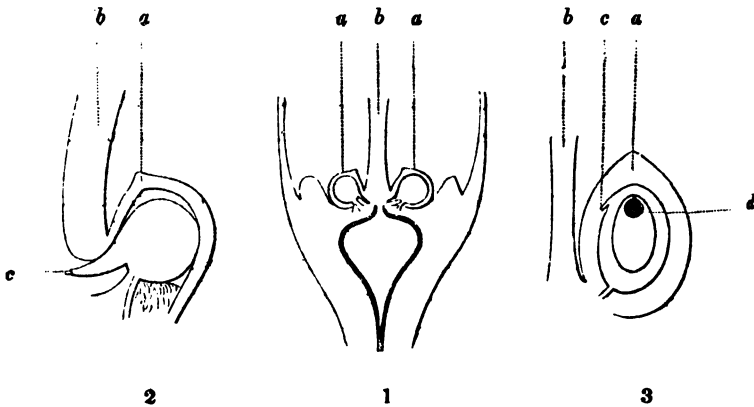
THE introversion of the embryo-sac, although insisted upon as an established fact, is still not an essential part of the theory of Schleiden. It is possible that the apex of the sac might have a minute aperture immediately below the micropyle; or the pollen-tube might, by perforating the membrane, gain admission to the interior, instead of propelling the upper half of the sac, as it is stated to do, into the lower half of the membrane to form a double wrapper for the nascent embryo. And although it is considered that sufficient proof has been obtained that no such introversion takes place, and that thus the entire theory, so far as it rests on the authority of Schleiden, is considerably weakened if not altogether set aside; it is not so easy to dispose of the question whether or not the pollen-tube enters the micropyle: to deny it would be to contravene the statements of some of the most able physiologists of the time, while the most diligent investigations of my own have failed to supply the smallest reason for adopting their views.

Wydler says:—"On doit à M. R. Brown la connaissance de la route que suit le boyau pollinique depuis le stigmate,—jusque dans l'ovule même, en y entrant par son micropyle; mais c'est là que s'arrêtèrent les observations de l'illustre Anglais. Cette route indiquée par lui, fut constatée par les recherches de M. Brongniart fils, comme par celles de M. Corda."* It also appears that even Mirbel and Spach entertain a similar opinion. For my own part, I have not succeeded in tracing the pollen-tubes very much below the stigma; and perhaps the pains bestowed in this method of investigation might have well been spared, because in most cases the micropyle is so situated with respect to the placenta, that a void space must be traversed by the pollen-tube in its progress thither; or at least the pollen-tube must glide along the surface of the ovule after leaving the placenta, before it can enter the micropyle; and thus, without any very minute

* *Annales des Sciences Nat.* tome xi. p. 144.

dissection, it should not be difficult to descry the lowest portion of the pollen-tube inserted into the micropyle, at the period immediately succeeding the fecundation of the ovule.

An argument which has been used with far more limited application by Mirbel and Spach, may not be irrelevant here. "Pour défendre avec succès [cet] opinion, il faudrait prouver non seulement que le boyau pollinique acquiert [souvent] une longueur démesurée, *mais encore qu'il est doué d'un sens particulier, à la faveur duquel il se dirige.*"* On the latter point, at least, it may be also said, without danger of contradicting those high authorities, — "Jusqu'à ce jour, cette preuve n'a pas été produite:" and when it is considered that in numberless cases the micropyle is not directed towards the placenta, but turned away from it, and thus placed in the most difficult and unlikely position for access on the part of an organ not endowed with intelligence, it might not be absolutely presumptuous to doubt whether these great observers may not, for once, have been misled by illusory appearances; or at least it may not be unpardonable to ask for additional evidence in support of the statement, to establish it as a general rule.



Myosotis palustris.

Fig. 1.—Longitudinal section of the base of a flower, showing two of the rudimentary nuts (*a*) at the base of the style (*b*).

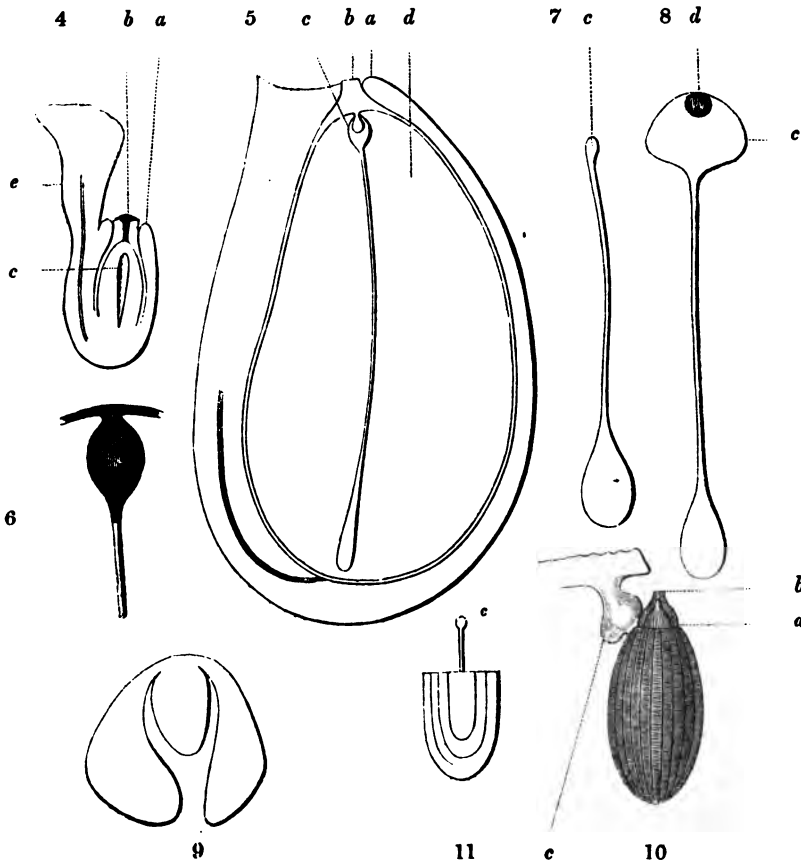
Fig. 2.—One of the rudimentary nuts more highly magnified. *a*. The pericarp. *b*. The style. *c*. The micropyle of the ovule.

Fig. 3.—A nut, half ripe, showing the altered position of the micropyle (*c*), no longer directed towards the base of the style (*b*), but in juxtaposition with the summit of the pericarp (*a*). *d*. The embryo.

The instances in which the micropyle is presented to the placenta, or rather, where it is placed in apposition with the base of the con-

* Annales des Sciences Nat. tome xi. p. 212.

ducting tissue, are comparatively rare ; but a very striking instance, perhaps even more curious than that which occurs in *Statice*, is presented in the plant about to be discussed.



Nuphar lutea.

Fig. 4.—Section of ovule at the time of fecundation. a. The primine. b. Secundine. c. Embryo-sac. c. Funiculus.

Fig. 5.—Section of the same, in an advanced state, showing the primary utricle (c) at the summit of the filiform embryo-sac. d. The nucleus.

Fig. 6.—Primary utricle of the last, highly magnified.

Fig. 7.—Embryo-sac removed from the surrounding parts, in an earlier stage than it is seen at fig. 5.

Fig. 8.—Embryo-sac, primary utricle (c), and the nascent embryo (d) in a more advanced stage.

Fig. 9.—Section of the embryo when nearly ripe, showing its dicotyledonous structure.

Nymphaea alba.

Fig. 10.—Ovule at the time of fecundation. a. Primine. b. Secundine. c. The funiculus, which afterwards develops itself into an arillus.

Fig. 11.—Section of ditto, showing the embryo-sac and the primary utricle (c).

Myosotis palustris. — At the time of fecundation the ovule is of a globular form, with a bent cylindrical neck, at whose extremity is the micropyle, (see fig. 1 and 2, p. 850). It has some resemblance to a chemical retort, and its neck being turned to the base of the style, the micropyle is placed apparently in immediate contact with the conducting tissue. As the ovule advances towards maturity, the micropyle is gradually withdrawn and elevated, until it is ultimately found near the summit of the ovule, (fig. 3, c). The embryo (d) has not been observed in its earliest stage, and it would be scarcely possible to trace the pollen-tube, on account of its excessive tenuity, into a micropyle thus situated: the pollen-grains of this plant are unusually diminutive.

Nuphar lutea. — In this plant the embryo-sac is remarkable for its great length, compared with that of the fully-developed embryo, which occupies only a small space at the top of the ripe seed, while the embryo-sac extends throughout its whole length. There is also a considerable thickness of the tissue of the nucleus interposed between the summit of the embryo-sac and the micropyle, at the time of fecundation, (see fig. 4); tending to show that fecundation may take place along the vascular tissue of the funiculus, and through the base of the ovule. It seems at least probable that the nutriment of the embryo is conveyed by that channel, (see fig. 5). At fig. 7 is shown an actual dissection of the embryo-sac, with the primary utricle (c) in a very early stage; and another, more advanced, is exhibited at fig. 8. In this the embryo (d) appears in its earliest intelligible state: when fully developed, it occupies the whole of the dilated head of the embryo-sac (c), and also assumes the same shape. The true structure of the embryo has been a subject of debate, but the section at fig. 9, leaves very little room to doubt that it is dicotyledonous.

Nymphaea alba. — In this the parts are quite analogous to the last, but with several modifications. Here the secundine projects very much beyond the primine, and the nucleus is likewise attenuated at the apex, so as almost to project beyond the micropyle. The funiculus also expands into an arillus, completely investing the ripe seed, (see fig. 10 and 11).

W. WILSON.

Orford Mount, Warrington,
December 2, 1843.

ART. CXCIV.— *Notes of a Botanical Excursion in France, in the Summer of 1843.* By JOSEPH WOODS, Esq., F.L.S.

(Concluded from page 834).

I did not pursue any systematic course at Malesherbes, but made short trips as it suited M. Barnard to accompany me, to point out the localities. But I will present the results of my observations in a more regular form. I will suppose the botanist, therefore, to begin by crossing the river, and taking a road to the right, examine some rocks and sandy banks on the right bank of the valley. This was in fact the first walk I took with M. Barnard. Here he may find *Osmunda regalis*, a remarkable station, as the rocks in general are very dry; *Asplenium viride*, *Tragus racemosus*, and in the neighbourhood of a little spring on the upper part of the slope, *Helosciadium repens*, *Botrychium Lunaria*, and *Schoenus compressus*. The *Helosciadium* is different from any English specimens which I have seen. It has properly no stem, but throws out runners, which produce at the same points roots, leaves and umbels; yet I would not be very positive that it is specifically distinct from *H. nodiflorum*. On the top of the sand rocks a little beyond this spring grows *Juncus capitatus*; and a little higher up, on the stony ground, abundance of *Epipactis atrorubens*. The habit of the plant, as well as its smaller leaves and dark purple flowers, and earlier time of flowering (June), strongly indicate a specific difference from *E. latifolia*, of which there is abundance in the same place, but not opening its flowers until the other is quite over. We also find here *Helianthemum pulverulentum*, and I think *apenninum*, the latter of which is perhaps a white-flowered variety of *H. vulgare*. *H. polifolium*, as figured in 'English Botany,' differs in its sepals, which are rounded at the top. At this point M. Barnard left me, but we may descend into the marsh and cross it to Ronceval. The principal rarities, as is often the case with the Botany of bogs and marshes in France, consisted of plants more common in England than here: here are *Carex dioica* and *pulicaris*, and several other species are said to be found, but the marsh was everywhere full of water, and though one may go up to one's knees for the certainty of a rare plant, yet one does not like to do so for the chance of a species considered rare by the French botanists, and the additional chance that it would not be so considered by an English one. All the *Carices* that I did see, were in very bad condition, and it was apparently a bad year for them. *Neottia spiralis* is found in these marshes at a

later season ; and on the left hand border *Malaxis Loëselii* is said to grow, but I did not see it. *Chlora perfoliata*, which in this part of France seems always to prefer a boggy situation, also grows here; and in some of the drier parts, elevated a few inches above the general level, *Inula salicina*. There were also : —

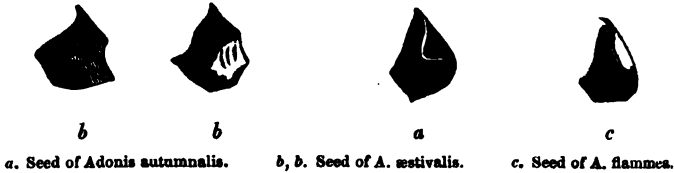
<i>Polygala amara</i> , var. austri-	<i>Scirpus uniglumis</i>	<i>Utricularia minor</i>
<i>Drosera anglica</i> [aca	<i>Schœnus nigricans</i>	<i>Ranunculus Lingua</i>
<i>Aspidium Thelypteris</i>	<i>Sparganium natans</i>	<i>Epipactis palustris</i>
<i>Pinguicula vulgaris</i>		

Before we reach Ronceval, to the left of the path through a pine-wood, M. Barnard finds *Lavandula vera* in abundance, but I missed the spot. *Scabiosa ukratica* grows on some sandy banks, but not in the abundance in which we shall find it in our next walk. I gathered also *Silene Otites*, *Orobanche ramosa*, *Linaria Pelesseriana* and *Polycnemum arvense*.

From Ronceval we may again cross the marshes in a new line, and pass the Essonne, either at the bridge below the chateau, or at the Mill *du Tonneau*. In either case we direct our course to the village of Pinson, behind which, on a bank at the edge of the wood, is *Medicago orbicularis*. We then cross the wood by a foot-path, where I ought to have found *Rhus Toxicodendron*. This is probably one of the plants introduced here by M. de Malesherbes, the generous defender of Louis XVI., who amused himself with planting trees and scattering seeds in the woods about the chateau. There are, however, many plants about Malesherbes, which seem to be naturalized rather than genuine natives, but which can hardly be attributed to him. *Prunus Mahaleb* I should think indigenous ; it abounds in the woods, not only here but at Etampes and Pithiviers : and being esteemed a good wood for fuel, it is now planted for that object ; but it seems more probable that a plant, a native of the country and found useful, should be selected, than that a foreign shrub should have been sought out for that purpose. *Cytisus Laburnum* is almost equally common, and is considered also good fuel. This may have spread from the gardens, where it has been early and generally admitted throughout Europe, as an ornamental plant ; yet I should rather suppose it wild originally, though increased to its present quantity by those who have the care of the woods. Nobody would doubt that these plants were in their natural situation if there were only one shrub where now there are a hundred ; their very abundance makes them suspicious. *Prunus Mahaleb* I gathered in a wood near Rouen, and it occurs in the forest of Orleans. For the *Laburnum* we must go

much further to find a position in which it is either certainly or doubtfully a native. Next to these is *Syringa vulgaris*, which occurs sometimes in large patches, and sometimes in scattered bushes, just as we should expect from a native plant. *Colutea arborea* is much less widely diffused; but this, and *Rhus coriaria* and *R. cotinus*, occur at Pithiviers as well as here at Malesherbes. Of *Robinia pseud-acacia* there is not much, except by the road-sides: it is not a good fire-wood. *Spiræa hypericifolia* occurs in several places, and as it cannot be of value for fire-wood, is probably a true native. Keeping still to this wood of Malesherbes, we find, in addition to the preceding, *Cytisus supinus* and *sessilifolius*, *Tilia parvifolia* and *Acer monspessulanus*. Our next plant is *Stachys lanata*, at the foot of a flight of steps leading towards the chateau: I observed also a plant or two of the same by the village of Pinson. We go up these steps, and leaving the chateau on the left, pass by a long straight avenue to the road to Orleans, which we cross, and gather *Cytisus supinus*, and after some distance, find on the left the wood of Chateau Gay, which we enter, and gather *Buxus sempervirens*, *Quercus coccifera* and *Taxus baccata*: even the latter of these is not thought genuine. Then on a hill almost detached from the general mass, abundance of *Phalangium ramosum* and *Carthamus mitissimus* occur. Here also, in some years, *Orchis odoratissima* abounds, but though M. Barnard was with me at this point, we hunted a long time for it in vain. The Orchises of the *militaris* tribe were over, but *O. hircina* was still in full flower, *Ophrys apifera* very plentiful, and *O. arachnites* just coming out (June 24), but when I again visited the point at a later period, (July 31), it was in great beauty: *Prunella grandiflora* also made much more show at this later visit. I do not mention in these walks *Teucrium montanum*, *Ononis Columnæ*, or *Helianthemum Fumana*, because they are almost everywhere about Malesherbes. On descending from this hill and leaving the wood, we gathered *Neslia paniculata* and *Lactuca perennis*. Here M. Barnard again left me, after having pointed out my course to the Colline de Justice. On a barren piece of ground on the way, the three species of *Adonis* were all growing together, which gave me an opportunity of comparing them. They are perfectly distinct, and well characterized by the seeds. In *A. autumnalis* (*a*) these are pyramidal, with a terminal style, and are rounded at the base. Those of *A. æstivalis* differ by having an unequally projecting membrane above the base, giving the appearance of a tooth to the outline, (*b*); while in *A. flammea*, the spike is more cylindrical, the fruit smaller and less angular, and the style be-

low the summit, (c): something of the border above the base is visible here also. These characters are the more valuable, as the flowers and seeds are generally found together. But in the spring (they all flower early in June, or perhaps in May), before the seeds are suffi-



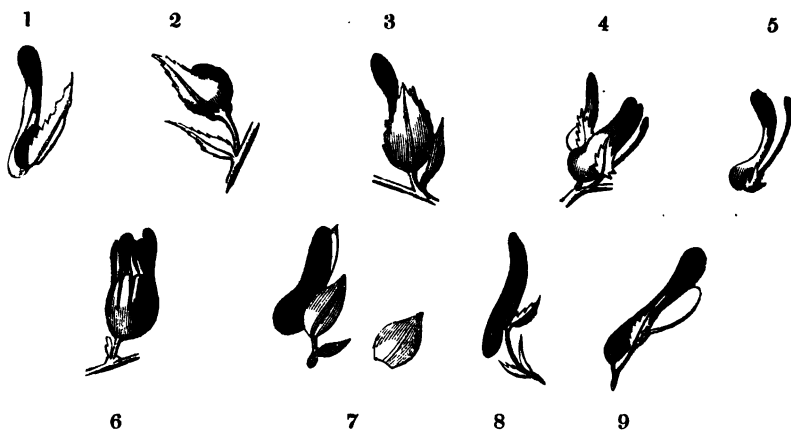
ciently advanced, they may be distinguished, — *A. autumnalis* by its somewhat incurved petals of a rich deep crimson, giving rather a globular appearance to the flower; *aestivalis* by its full, flat, scarlet flower; and *flammea* by its few (3—5) and narrow petals, forming a flower neither conspicuous nor beautiful. Upon the same piece of barren ground grows *Linum montanum*, here quite prostrate; while on the neighbouring Colline de Justice it is erect. Other difference I could not find, except that the latter form produces its flowers for a short period only, while the former keeps throwing out its flowering-stems all through the summer. *L. montanum* and *L. alpinum* seem, however, hardly marked by any other character: *L. perenne* of Smith (*L. anglicum* of DeCandolle) is perhaps distinguished by its obtuse sepals. Here we also meet with *Micropus erectus*, which I afterwards found to be very common at Etampes and Pithiviers, as well as at Malesherbes; and with *Althæa hirsuta*.

From this barren piece I mounted the Colline de Justice, where again we find abundance of *Orchideæ*, *Carthamus mitissimus*, and *Spiræa hypericifolia*, together with *Rosa cinnamomea*, *Lavandula vera*, and one or two plants of *Satureja montana*. From this hill I crossed the plain to two or three cottages within sight, above Rouvilles, which mark the station of *Rosa lutea*, and where, on the 24th of June, I still found one or two straggling flowers. From thence, leaving the chateau, which lies between us and Malesherbes, on the left, we follow the line of a hedge till we have wood on the outside of the inclosure as well as within, and then crossing the hedge, which is everywhere pervious, we find *Limodorum abortivum* on the descent, on the stony soil above the sand.

In all this walk we have been rather circling Malesherbes, than going to any distance, and it might be divided into two, or the two last portions might be visited in our next walk.

In this we again cross the bridge, but afterwards turn to the left

instead of the right. On the sandy ground here, as indeed in many other places, we find *Fumaria parviflora* and *Vaillantii* abundantly. I have not, in this excursion, seen much of the larger forms, but the four smaller seem distinctly characterized. In *F. parviflora* the seed ends in a blunt acumen, giving a somewhat lengthened form to the



1, 2, 3.—*Fumaria micrantha*, Cosson. 4, 5.—*F. parviflora*, Plain of Varenne. 6.—*F. Vaillantii*, Pichiviers. 7.—*F. micrantha*, Sussex. 8.—*F. officinalis*, Beauvais. 9.—*F. officinalis*, England.

whole fruit; and though in *F. officinalis* and *Vaillantii* there is sometimes a sort of umbo, yet this rather occupies a terminal hollow than forms of itself a projection. In *F. officinalis* the calyx, on the first opening of the flower, is as long as the germen; in *Vaillantii* it is extremely small and evanescent, so much so that it is often difficult to be certain that there is any, even before the flowers are open; in *micrantha*, on the contrary, it is broad, more than half as long as the flower, and exceeding at all times the seed-vessel. The calyx of *F. parviflora* is larger than that of *Vaillantii*, but this, as I have already observed, is distinguished from all the others by the fruit.

Our next plant is *Verbascum thapsiforme*, which is also very common, but flowering rather later than many of the plants of our walk. The large flower and the lengthened lower anthers are the first things to be attended to. Cosson &c. make the character depend upon the greater proportionate length of the filaments, but I do not find this to be correct. The anther is lengthened quite as much in proportion as the filament; and it is to be observed that in *V. Thapsus* the two lower filaments and anthers are somewhat longer than the others, and in all the species of *Verbascum* where this takes place, the lengthened anther is smooth at the top, and sometimes in its whole length. Another point is in the base of the leaves, which are always so

decurrent in *V. Thapsus*, as to form five wings to the stalk. I cannot assert that this is never the case in *V. thapsiforme*, but I believe it will not be found to obtain through the whole plant, and the lower leaves are sometimes so little decurrent as hardly to furnish two continued wings, bringing it near to *phlomoides*. It may be a variety of *V. Thapsus*, but it is not a hybrid, as this and *Thapsus* are rarely found together.

We have as yet made very little progress in our walk. A few steps further bring us to a bank of loose sand, profusely covered with *Scabiosa ukranica*, which however is hardly in a state to offer good specimens before the middle of August. A little further, and higher up on the crest of the hill, where we also found most of the plants we had observed in similar situations in yesterday's walk, grows *Stipa pennata*. Abandoning the hills for a moment, we descend into the marsh, in one point of which we find *Ophrys Loeselii* in plenty, and *Myriophyllum pectinatum*, which seems a common form in this part of the country. This is also a station of *Carex filiformis*, but I did not see it. We then take the road for Nanteau, and directing our course to the east end of the village, follow the carriage-road towards Bois Minard, near the beginning of which, in the sandy bottom, we find *Trigonella monspeliaca* and *Andropogon angustifolium*. The botanist may then either continue to Bois Minard, or return through Nanteau, and take the road along the valley as far as the Mill of Noigneau. I took the former course, and from Bois Minard descended through a woody valley to the Chapelle Nainvault, now a barn, and to the said Mill of Noigneau. This valley will perhaps give nothing new, yet it is pleasant to see such a number of plants together, either rare or unknown with us. The steep barren points were splendid with : —

<i>Dianthus caryophyllus</i>	<i>Ononis Columnæ</i>	<i>Aira canescens</i>
<i>D. prolifer</i>	<i>Coronilla minima</i>	<i>Euphorbia Cyparissias</i>
<i>Silene Otites</i>	<i>Statice plantaginea</i>	<i>Ononis natrix</i> , which I
<i>Veronica spicata</i>	<i>Sedum album</i>	ought to have men-
<i>Melampyrum cristatum</i>	<i>Geranium sanguineum</i>	tioned before, as it
<i>Helianthemum guttatum</i>	<i>Stachys recta</i>	grows in many pla-
<i>Teucrium Chamædrys</i>	<i>S. annua</i>	ces.
<i>T. montanum</i>	<i>Allium sphærocephalum</i>	

The white-flowered *Helianthemums* were over. In the lower parts we had *Campanula persicifolia*, *Coronilla varia*, *Peucedanum Oreoselinum*, *Malva Alcea* and *Tilia parvifolia*. I missed *Scabiosa suaveolens*, which is said to grow in this valley.

After passing the mill and the bridge beyond it, we cross the

marshes by a path to the right, which is not always practicable. I was told that this would take me to St. Val: I do not know whether I made some mistake, and kept too much to the left, but I came out at Boigneville, the hills behind which descend in a sort of double slope, of which the highest is stony and the lower sandy. Behind the last houses of the village, on the upper part of the lower slope, *Hyssopus officinalis* grows in great profusion. At Boigneville are two respectable public-houses. I continued my walk to St. Val, behind which there is a range of rocky wood, where however I added nothing, and I should recommend it and some points above to the examination of another day, when the botanist has not spent his time and his labour in hunting out plants by the way: he will therefore set his face homewards, and passing the little bridge at Boigneville, ascend the rock of St. Gervais by a winding foot-path. This bridge is over a little stream, whose sources are in the marshy ground of the valley above, and there are moist places at the foot of the rocky bank a little above the level of the marsh, which seemed promising, but I found nothing. As he emerges from the rocky ascent of St. Gervais, he will find *Bupleurum aristatum*, which I believe is the only addition I have made to the Flora of Paris: and he will enjoy a fine view up the rocky valley of Prainvault, and down that of the Essonne. Thence keeping to the left on the edge of the hill, he will come to a carriage-road which rises from the valley. Near this he ought to find *Ruta graveolens* and *Allium carinatum*, but I failed in both, although I returned a second time to look for them. After leaving this point I took the by-road to Argerville, and turning to the right followed for some distance the valley of the Essonne to Touvault, soon after which my road ascended the hills. I left it at the top and followed the crest, which gave me again *Limodorum abortivum* and *Bupleurum aristatum*. From this point we may pass through a little hamlet, and above the chateau of Rouville, and gather *Rosa lutea* and *Limodorum abortivum*, if we have not already included them in our collections.

Many other excursions, extending to a greater distance, might doubtless be made profitably from Malesherbes, keeping among the woods and steep banks which border the valley of the Essonne; for on the flat table-land which extends on each side, there is little to be found. I went on one occasion to Boissy aux Cailles, near which, in the early spring, M. Barnard obtained *Scilla bifolia* and *Corydalis fabacea*. I found nothing; but it is curious and very delightful, after a long, dull, nearly level walk, to find one's self on the edge of a deep picturesque hollow, where rocks, woods and sandy banks are mixed

with villages and cultivation. This hollow of Boissy aux Cailles forms the head of a separate valley, watered lower down by the little river l'Ecolle, which falls into the Seine at Ponthievy. The eye follows it as far as Milly, where some pretty high hills, probably calcareous, rise above the sandy banks. To judge from this view, and from the figure it makes on the map, there is no situation about Paris which promises a better harvest than Milly, and as we find no habitats assigned, I conclude that none has been so little visited.

Whatever we may think of the Botany of Malesherbes, the tendency it exhibits to admit a foreign vegetation is very curious. Of the various plants which have been sown in different places in our country, for amusement, for experiment, or with the fallacious and foolish view of swelling out the numbers of a local Flora, we know that very few have succeeded; but here everything seems to take root.

On the 26th of June I found a voiture at Malesherbes, which took me to Lardi, whence I went by the rail-road to Etampes. Our road followed the valley of the Essonne (after the first three or four miles) as far as Ferté l'Aleps, and the whole is very tempting; but on another occasion (July) I visited Pithiviers, which perhaps is more different in its character from Malesherbes than Maisse, la Ferté, or any place in the lower valley of the Essonne. The grit and sand here disappear, and we have only a few calcareous rocks and slopes of trifling elevation arising from the valley. Pithiviers would afford two long walks, one up and one down the valley, in each case going on one side and returning on the other. Many of the rarities of Malesherbes are here plentiful; as *Linum montanum*, the erect variety, *Teucrium montanum*, *Ononis Columnæ*, *Micropus erectus* and *Althæa hirsuta*. *Prunus Mahaleb* is extremely common, as well as several of the other shrubs of doubtful spontaneity already mentioned. In the park, a vast enclosure of fields, gardens, meadows and marshes, M. Cosson and myself gathered *Lathyrus palustris*. This park is open on the side towards Pithiviers, but has no exit at the further end, and its long wall forces one to a disagreeable detour on that side of the town. Below the park is a considerable marsh, somewhat peaty in places, and here also is found *Lathyrus palustris*, but not so plentifully as in the park. In another direction *L. tuberosus* grows among the corn. Towards Bonderoy, *Medicago orbicularis* is plentiful, and we observed *Tordylium maximum* and *Veronica præcox*.

From Etampes the walk I should most recommend is to go to the extremity of the Fauxbourg St. Pierre, and turning on the left from the road to Pithiviers, ascend a sandy slope by the side of a sand-pit.

Immediately after leaving the houses we find *Tragus racemosus*, and higher up *Fedia coronata*. Crossing the ridge, and a cultivated valley, we reach a second woody bluff where *Helianthemum Fumana* (or *procumbens*) is exceedingly abundant. Proceeding in the same manner we mount a third woody point, after passing in the bottom the road to la Ferté, which is characterized by the size and abundance of *Ononis Columnæ*, and on the top by the quantity of *Micropus erectus* and of *Orchidææ*, for which however I was too late, except for *Satyrrium hircinum* and an *Epipactis*.

The *Micropus* is nearly wanting on the two first hills. The upper part of the fourth point offers us *Carthamus mitissimus*, and on its foot, in a sandy wood which descends into the plain, an *Orobanche*, which some of my botanical friends thought to be *O. arenaria*. On examining it more at leisure, and comparing it with a specimen of *O. arenaria* from Montpellier, it appears to me a variety of *O. cærulea*, with blunter divisions to the lower lip, and the upper toothed, but nearly entire. I did not go any further, but there are three other points of the same nature well worth an examination, and we might then walk to Etrechy, two leagues from Etampes, and return by the rail-road. The only interesting plants I have seen at Etampes, not included in this walk, are *Teucrium montanum*, *Linum montanum* and *Trigonella monspeliaca*; and I should think it probable that a further investigation would yield these also. The two first seem to prefer a calcareous soil, and would be found in a walk begun by crossing the marshes of the Juine by a foot-path, and keeping among the woods to the right. I did not go far in this direction, and about Ormoy la Rivière, the hills do not appear interesting. Further up the valley they are again more promising. Just beyond the first hollow, opposite to a mill before reaching Ormoy, are some banks which seem exceedingly rich in *Orchidææ*; and if *Orchis variegata* had got into the Norman Flora by anything but a mistake, I should expect to find it here. There are some barren slopes stretching from Briere les Scellées towards Champigny, which will yield *Trigonella monspeliaca*, and perhaps something else; at the foot I observed *Arnosseris minima*: I passed along it in the rain. In the fields at the top I noticed the *Polycnemon*, and above St. Martin de la Roche, *Trifolium glomeratum*, which is considered a prize by the Parisian botanists. At St. Martin is *Leonurus Cardiaca*, but I did not see the *L. Marrubiastrum*, said to be found near Etampes. At St. Hilaire, *Carthamus mitissimus* is abundant; and in the fields on the plain above, *Targionia latifolia*. In a rocky sandy bit of wood in the way, the *Trigonella* al-

occurs, but less abundantly than in the station before noticed : *Medicago orbicularis* also occurs in the same place. *Fedia coronata* is most abundant on a sandy point overhanging the rail-road : *Oxalis stricta* occurs in the lower grounds ; *Coronilla minima* and *Micropus erectus* are common in this direction.

On the 29th I left Etampes and returned to Paris ; and on the 2nd of July accompanied M. de Jussieu and his friends and pupils in a herborization in the forest of Montmorency.

The neighbourhood of Paris affords a number of stations for pleasant and profitable botanical excursions, in the radius of a few miles. The forests of Marly, St. Germain, Montmorency, Bondy and Senart, the woods of Meudon and Versailles, and still nearer, those of Boulogne and Vincennes, afford ample scope for botanical investigations. Sometimes a larger range is taken, and M. de Jussieu leads a party, once in the season, to Fontainebleau or Rambouillet. In the weekly excursions, the mass of pupils know little about Botany, but even in these parties there are generally some sensible men and good botanists, besides M. de Jussieu himself, and M. Decaisne. M. de Jussieu's method with his pupils is admirable. They bring him plants to name, and he adds to the name some little note about their characters, or the natural class to which they belong, or calls their attention to particular points of construction which may tend to elucidate these points.

We took the road by the *Fontaine*, and thus entered the forest, keeping afterwards rather to the left. There is a good deal of springy ground, which does not perhaps yield much water even in the spring, but which is sufficient to maintain a number of plants which delight in moisture, and *Osmunda regalis* and a variety of *Carices* are pretty widely diffused. We got *Carex Mairii* growing plentifully, mixed with *C. flava* ; *Polygala depressa* seems also to like wet places. On emerging from this part of the forest we passed the village of Andilly, from a point above which we had a noble view over the valley of the Seine and the surrounding hills. On the top of this bluff the stones abound in the fossil seeds of *Chara medicaginula*. On ascending this point we turn to the left, between a corn-field and a branch of the forest : the former contains *Arenaria segetalis*. Beyond this we again find a considerable extent of wet ground, from which we descended to a dried-up pool, at the foot of which is the habitat of *Stachys alpina*. In this pool, or in one in the same neighbourhood, I recollect on a former occasion to have found *Teucrium Scorodonia*. We then turned up the little valley which forms a station for *Asperula odo-*

rata, and one or two other plants more common with us than about Paris, and arrived at a house famous for its milk, and *fromage à la crème*, which is more like clotted cream than like cream cheese, and after passing the foot of another pool, take a path to the right, at a little distance above which, on the left, is some boggy ground, the station of a curious monstrosity of *Erica Tetralix*. The flower is small, and much less conspicuous than ordinary, and the style very prominent; but the wonderful part is the apparent conversion of the eight anthers into as many cells of a seed-vessel.

It may be supposed I did not neglect the Bois de Boulogne, but I hardly know what line to recommend to an English botanist. The wood is nearly flat, on a sandy soil, and for a Parisian botanist contains few rarities but such as are suspicious. An English one, however, may be gratified, especially if he visits it in May, with finding *Convallaria Polygonatum* and *multiflora*, *Pulmonaria angustifolia*, *Melampyrum cristatum* and *Herniaria glabra*; or later in the season, *Coronilla varia* and *Veronica spicata*. Perhaps the best line would be to enter by the gate at Passy, near to which, on the rubbish and broken ground occasioned by the new fortifications, M. Bourgeau has lately found abundance of *Centaurea melitensis*. After passing the fortifications, we may keep northward to a great carrefour, that is, in this instance, to a large open circle where a great many roads unite. A little to the north we find *Thalictrum sylvaticum*, also a discovery of M. Bourgeau's, and if not a species, it is a variety well worth notice. It is smaller than *T. minus*, and differs from that in the manner in which it spreads itself over the ground, forming an almost continued and even covering. We then turn to the west, to the gate of Long-champs, near which are *Medicago orbicularis*, *Orobanche amethystea*, &c., and passing the gate we descend to a gravel-pit, about which are *Heliotropium europæum*, and several other plants not uncommon in such situations about Paris. We re-enter the wood, and take the avenue of Grand Villiers, leading to the gate of Boulogne; then take the first turning to the left, and near the turning, and for some distance along the last-mentioned road, we find *Potentilla pensylvanica*, *P. recta*, *Myagrum orientale* and *Brassica Cheiranthus*: there is also a large variety of *Thalictrum minus*. We go out of the gate of Boulogne, and make our way at a little distance from the wood to the *Point du jour*. I did not at the time visit this locality, but have a recollection of being much interested there some years ago.

On the 10th of July I took the rail-road to Versailles, and walked to the *Etang du trou Salé*. My chief objects were *Potentilla supina*

Elatine alsinastrum, *E. hexandra* and *Scirpus supinus*, but I succeeded only with the first. The Etang du trou Salé is a pool made by damming up a trifling valley, and the permanent supply of water is very small, if any, yet a number of persons engaged in angling may serve as a proof that it is never quite dry. The sides are very nearly level, so that a fall of a few inches exposes a great extent of land overflowed in the winter. In this part grows the *Potentilla*, this year in great abundance, but in some years it is said to be very sparingly scattered. Here also is *Gypsophila muralis*, and an *Alopecurus* that is called *fulvus*, but which I think does not differ from *A. bulbosus*. Some of the plants have a decided swelling at the base of the stalk, others are as decidedly without it, and between these there is every possible step. A little higher up we find *Lythrum hyssopifolium*, and on the edge of the water, *Littorella lacustris*, *Limosella aquatica* and *Scirpus acicularis*. For *Scirpus supinus* I am probably too early, as I believe it hardly flowers before September.

On the 14th I again accompanied M. de Jussieu and his pupils: M. Delile and his son, and M. Maire, were also of the party. We went on the rail-road to Athys, where we crossed the water, traversed a cultivated plain, and afterwards followed a little stream to its source in the forest of Senart. There is a good deal of boggy ground in this forest, where the face of the country seems to give little expectation of such a feature. Our plants were *Exacum Candollii* and *filiforme*, *Juncus tenageya*, *Centunculus minimus* and *Potamogeton heterophyllus*, all near the Carrefour des Cerfs. *Epipactis palustris* and *Chlora perfoliata*, abundant on the boggy ground. *Utricularia minor*, *Inula salicina*, *Campanula cervicaria*, *Malva Alcea*, *Peucedanum parisiense*, *Selinum caruifolium*, *Stachys germanica*, *Polycnemum arvense*, *Stellera passerina*, and *Carex intermedia*, the latter growing in the water, and putting on an appearance different from that which it has with us.

We concluded our walk at Ris, where we again got on to a rail-road train, and reached Paris about 6 o'clock.

On looking back at the course I have held, I must acknowledge that my turning south at Mantes before reaching Paris was not well planned in point of Botany, though a view of the cathedral at Chartres might be well worth such a deviation. A better way would be to stop at Vernon. There is a little valley above Vernon where perhaps something might be found, but the acknowledged spot of good Botany is on the hill of St. Catherine, on the opposite side of the Seine. From Vernon, descend in the steam-packet to the lesser Andelys, where the Rochers de St. Jacques on one side of the town, and Cha-

teau Gaillard on the other, give probably the richest harvest on the river from Paris to the sea. A person who is not nice in his demands for accommodation, may be well entertained at the Chaîne d'Or, at the little Andelys. The larger would probably afford a larger inn. From Andelys the botanist may again descend the Seine to the station which communicates with Louviers. He would then have to pass twice on the rail-road the distance from that station to Vernon, but this would cost less time than to ascend the stream between the two places. If after this he is inclined to stop at Mantes, he will find the best Botany on the hills on the north side of the river.

JOSEPH WOODS.

November, 1843.

ART. CXCVI.—*Varieties.*

433. *Observations on Hieracium nigrescens and H. hypochaeroides.* In the last number (Phytol. 801), Mr. H. Watson has called attention to the plant which has been lately considered by English botanists as the *Hieracium nigrescens* (*Willd.*), and for my knowledge of which as a native of Scotland I am indebted to his kindness. A specimen now before me (gathered by Mr. Watson on Ben Alder) agrees exactly with Bohemian specimens of *H. nigrescens* received from Mr. Tausch under that name; and as specimens from that botanist are expressly referred to as representing the plant of Willdenow's herbarium by Mr. Frœlich (*DeCand. Prod.* vii. 209), the latest general writer on the subject, I feel myself at liberty to consider that the Bohemian specimens are authentic representations of the plant of Willdenow. In addition to this the Scottish plant agrees well with the descriptions of *H. nigrescens* given by different authors, some of whom consider it as a distinct species, and others refer it, as an extreme form, to *H. alpinum*. Having now shown, I trust, sufficient reason for its name, I proceed to make a few observations upon its claims to specific distinction. This is a subject upon which much difference of opinion exists, since some forms of *H. alpinum* (*H. Halleri*) approach very closely to it; and it is only by long-continued cultivation, from seed, of this and *H. Halleri*, that we can expect to arrive at a determinate opinion upon the subject. I am unable to add anything to the character pointed out by Mr. Watson, as distinguishing this plant from all the forms of *H. alpinum*, namely, the much broader and more strongly toothed leaves and the dark or nearly black involucre. The difference of the colour—

of the involucre seems to depend upon the comparative shortness of the hairs with which it is clothed ; they are terminated by a pale portion as in *H. alpinum*, but that part is very short, thus allowing their lower part, which is black, to be much more distinctly seen. These peculiar hairs will enable the plant to be distinguished from all forms of *H. murorum* ; and in those specimens which produce more than one flower, the very acute angle between the peduncles is a certain character. I do not venture to give any strong opinion upon the specific claims of this plant, but am strongly inclined to think it distinct from *H. alpinum*. I hope now to be allowed to say a few words on the second plant referred to by Mr. Watson. During a visit to the West Riding of Yorkshire in July last, I was shown by Mr. John Tatham, jun., the plant that has for many years been called *Hypochaeris maculata* by the botanists of that neighbourhood, growing upon rocks near Settle, and had no hesitation in calling it a form of *Hieracium murorum*. I have now re-examined specimens from that place, and am fully confirmed in my opinion. I consider Mr. S. Gibson's *H. hypochaeroides* to be the same plant. This is far from being an uncommon plant, and is very often taken for the *H. maculatum* (*Sm.*) or *H. pulmonarium* (*Sm.*), to which it is very closely allied, or the *H. pictum* of authors. *H. maculatum* is, according to my view, a much larger plant, with several stem-leaves, having a decurrent base to all the leaves, thus referring it to *H. sylvaticum*. The plant called *H. pictum* from the falls of the Ogwen is the *H. rigidum*, *γ. pictum* of my Manual (p. 186), and quite distinct from all the forms of *H. murorum* or *H. sylvaticum* ; I possess it from Wastwater, Cumberland ; Falls of the Ogwen, and near Llanberis, Caernarvonshire ; and from near Thorngraston, Northumberland. — *C. C. Babington ; St. John's College, Cambridge, December, 1843.*

434. *Note on the Weymouth Stations of Lathyrus Nissolia and Salicornia radicans.* In reference to Mr. Gibson's remarks on the plants of Weymouth (*Phytol.* 735), and the Rev. A. Bloxam's note (*Id.* 775) on the same subject, it may be worth mentioning that I was at Weymouth in 1837, immediately after Mr. Bloxam's visit, when I found *Lathyrus Nissolia* growing abundantly to the west of Portland Ferry, and *Salicornia radicans*, also abundantly, on the ground newly reclaimed from the Backwater. — *T. Bell Salter ; Ryde, December, 1843.*

435. *Note on the Hieraciums.* You will perhaps allow me to thank Mr. Watson for his information on the subject of the *Hieracium* (*Phytol.* 801), Mr. Watson's remarks are very clear and satisfactory, and there is little doubt of the plant sent by Mr. Tatham "to the Botani-

cal Society of London," being the same as the one I alluded to (Phytol. 741), and there is no doubt of Mr. Tatham's having been led into the error by some of the botanical works alluded to by Mr. Watson; but after this I would say that the plant sent by Mr. Tatham to that Society, was neither the *H. pulmonarium* nor the *H. maculatum* of Smith; the latter plant does certainly grow about Malham-cove, and in cultivation remains perfectly unchanged; this is the *H. maculatum* of our gardens, and if it be not a distinct species, it will be a variety of *H. sylvaticum*, *Smith*. It differs from the one which has been mistaken for *Hypochaeris maculata*, in having its stem leafy, and in having more numerous flowers. In all the specimens which I have seen of the other plants, the stems are *without leaves*, and as I have said (Phytol. 741), the plant is not described by any writer on British plants.—*Samuel Gibson; Hebden Bridge, December 9, 1843.*

436. *Note on Carex pseudo-paradoxa.* I am sorry to be so much at variance with Dr. Wood, in respect to several of his remarks on my *Carex pseudo-paradoxa*, I do not understand what is meant by his saying, "and considering myself in some degree obliged to maintain the correctness of the Flora of this neighbourhood," unless he would say that I have stated something relating to the Manchester Flora which is not correct; and this I have not done, neither do I wish to do it. It appears that the Dr. and myself differ in our opinions as to how far *Carex teretiuscula* and my *C. pseudo-paradoxa* may or may not be considered distinct as species. Here I might ask what number of parts, and which of them, shall be looked upon as characteristic? But as that question has so often been asked, and no one can answer it, I will leave it as it is, and turn to the Dr., who has not noticed many particular parts of my *C. pseudo-paradoxa*, and those he has noticed will go to prove that it is a very different plant from *C. teretiuscula*. I did not notice the roots of my plant in the description which I gave of it (Phytol. 778), although I had been previously informed of its singular mode of growth; this I declined, as I did not wish to describe anything which I had not seen myself. The roots are the first which the Dr. takes notice of; he tells us that *C. teretiuscula* has a distinct mode of growth, and on the contrary that *C. paniculata* has roots which form dense and elevated *cæspites*: he then says, "so far as my observations extend, this difference in the roots is permanent." After this he tells us that my *C. pseudo-paradoxa*, in the place where it is found, "has not the opportunity of displaying its characteristic property of isolation, and is compelled to increase by a regular approximation and aggregation of its roots." He also

says that "as we approach the water, however, it begins to separate itself into masses of various sizes, and in this manner assumes a pseudo-cæspitose appearance." This is, I think, carrying the thing too far; first to tell us that the character of a plant is *permanent*, and then in the very next sentence to tell us how this *permanent* character can be changed. Here I must beg of the Dr. to stand on even ground, as I shall allow him nothing for supposition, unless he would allow me to suppose that the roots of my *C. pseudo-paradoxa* might be the roots of *C. paniculata*, in a modified form. This calls to memory the story of the *oat* being so much modified as to become *rye*. The next thing the Dr. takes notice of, is "its elongate and slender stems, and its more racemose mode of inflorescence:" this, he says, led him and the friend who was with him to suspect it might possibly be something *new* to them. There is nothing here but what will go to prove my plant to be very different from *C. teretiuscula*. The Dr. says that the plant has a more *racemose* mode of inflorescence; our editor tells us it has a *spike* — panicle he cannot call it. Now I will see what characters it must have to be a spike, &c. If it be a spike, the sessile or nearly sessile flowers are borne immediately upon an axis. Is our plant so? — *No*. If it be a *panicle*, the flowers are borne upon peduncles, which are variously branched, and seated upon an axis. Is our plant so? — *No*. If it be a *raceme*, the flowers are borne upon pedicels, which are generally single-flowered, and these again upon an axis. Is our plant so? — *No*. If it be a *thyrsæ*, the flowers are in a panicle which is very closely compacted, so as to form an oval head. Is our plant so? — *Yes*. The specimens now before me have their inflorescence composed of about six spikelets, two or three of the lower [ones] are again divided into about five or six spicula. This I called a *panicked spike* (Phytol. 778), and this perhaps would be a better term, as thyrsæ is not in common use. The next part of the plant which is taken notice of by the Dr. is the *fruit*. Here I have to enquire what the Dr. means us to understand by the *fruit*? For Sir W. Hooker, in describing the fruit of our *Carices*, takes notice of nothing more than the *perigynium*. Sir J. E. Smith makes a distinction between the fruit and the seed; when he speaks of the *perigynium* he calls it the fruit, when he speaks of the nut, he calls it the seed. When Mr. Babington speaks of the fruit of a *Carex*, he means to be understood as speaking of the *perigynium* and nut together; and when he speaks of them separately, he expresses it as such. When I speak of the fruit of a *Carex*, I speak of the *nut only*, as I do not consider the *perigynium* any part of the fruit. If the Dr. is to be

understood as meaning the perigynium only, he is correct, but if when he speaks of the fruit, we are to understand the nut and perigynium separately, he is not correct when he says it "hardly, if at all, differs from that of *Carex teretiuscula*," as the nuts in these two *Carices* are very different, and will be found as I have described them (Phytol. 778), although the perigynia of the two are much alike, and this I have made no attempt to deny. Here again I find the Dr. obliged to admit that my plant puts on a different *aspect* and *habit*, he says it does this under the adventitious circumstances in which it grows. A little lower I find him talking of a *modified form*: modifications and changes will not do. I must again caution the Dr. to keep in a direct road, for if he goes to one side I shall go to the other. But this I will leave, and the next thing I shall notice is a modification of the following words: "as a form of *C. teretiuscula* *with fruit as in paniculata*," (Phytol. 778). These words I find so much modified as to stand as follows:—"a form of *C. teretiuscula* *with the fruit of C. paniculata*." There are two or three other things I might have noticed, but as I am now taking up too much of your space, I must beg of you to allow me to notice another (and perhaps the most important) point, and that is the *secrecy*. The Dr. says that "no such thing as secrecy has been shown at all," and that I was *never* refused to have the place made known to me. Here I cannot well make use of names, as the parties might not allow it; but I will tell the Dr., that the individual he alludes to, after telling me he was not at liberty to go, did refuse to make the place known to me. The refusal was made on the ground of its being nine miles from Manchester (I had been previously told it was three miles), and that if I were to go, I could not find the place. The Dr. further says that I did not apply *to any one else*; this I will say is not the case, as I made application, both by letter and otherwise. I was about two hours with a person who knows where the plant grows, and I tried every artifice I could to induce him either to go with me to the place, or otherwise to procure me specimens; but this was all to no purpose, and when I found that I could not procure them in a straightforward way, I resolved to go a little about for them. And I will now tell the Dr. that the person whom he employs at times to collect plants for him, did receive 5s. for going to fetch the specimens which I have now before me. I should have had to offer a few remarks on our Editor's note, but will prefer waiting the result of his renewed examination, and for the present leave the subject.—*Id.*

437. *Note on an apparently new British Carex.* I have much pleasure in announcing, through the medium of 'The Phytologist,'

the discovery (by Saml. Hailstone, Esq., F.L.S., of Horton Hall, near Bradford) of a *Carex* which appears to me not to be described by any writer on British plants. For this *Carex* I will propose the following name, and give a short description of it: but if it prove to be already described by continental botanists, under any other name, the one I have adopted will, of course, be given up. *CAREX Hailstoni* (Mihi). Stem about 18 inches high, three-angled, angles rough in the upper part, smooth below. Leaves flat, sheathing the base of the stem, tapering at the point and rough on the edges. Spike $2\frac{1}{2}$ inches long, composed of about five alternate elongated spikelets, the lowermost of which is subtended by a bractea, which is somewhat longer than the spike: spikelets about an inch long, composed of about nine or ten spicula, these again are composed of about nine or ten *staminiferous* flowers: glumes ovate-acuminate, brown, with membranous edges. The roots and fertile flowers are unknown to me; perhaps the plant will be found to be a *dioecious* one, as I have not been able to find a single fertile flower in any of the specimens. Locality, "In a bog in the meadow on the left hand of Ore lane, proceeding from Hastings. In the spring of the year 1834." This plant is perhaps still to be found in the same locality, and would be well worth the trouble of being looked for by any botanist who may at any time be in search of plants in the neighbourhood of Hastings. This *Carex* is a very conspicuous one, and would soon be seen by any person who is acquainted with the genus. It is now nine years since Mr. Hailstone discovered the plant; and he says in his letter to me, that he had kept it in his herbarium separate and apart, as not being described by any author that he was aware of, as an English plant.—*Id.**

438. *Erratum*. Perhaps you will allow me to correct a little error which appears in your last (Phytol. 815); in the last line of that page read *neuter* spikelets instead of *outer* spikelets.—*Id.*

439. *Habitat for Cynodon Dactylon*. For the use of the youthful botanist resident in or near the great metropolis, to whom information of the whereabouts of any of the rarer species is a desideratum, I would mention that of *Cynodon Dactylon*, which I have seen in some abundance in the month of August, on Kew Green, Surrey. This, if I

* To the above communications Mr. Gibson appends the following — "P.S. Do not omit any part of the above note." We have however taken the liberty to omit an entire paragraph, in which no allusion is made to the *Carices* in question: the remainder of Mr. Gibson's letter is printed verbatim.—*Ed.*

mistake not, is an unpublished station for this beautiful little grass.—*Walter Hill; Kew, December 14, 1843.*

440. *Note on the genus Sphagnum.* The genus *Sphagnum*, which occupies such an important position in the economy of Nature, does not latterly appear to have received, in this country, the same degree of attention which is bestowed on many other genera of mosses. Perhaps Sir W. J. Hooker's remark in the 'English Flora,' has dissuaded many persons from attempting to discriminate the species; "as it is certain," he says, "that the limits of the species, if such they may be called, cannot be defined." The four species given in that work are sufficiently well marked in character, and if no other forms were to be met with, would be easily distinguished; but the fact is, we have other forms, apparently quite as distinct, and fully as worthy of a name. If I am correct in this statement — and I think no one will deny it — we must come to the conclusion either, like Linnæus, to reduce all to but one species, or to add a few to the existing number. At the present time, when there is so general a disposition to multiply species, the former alternative is not very practicable, however reasonable it might be considered by some; even if it were attempted, it could not stand the test of *facts*, seeing that several of the admitted species may often be found growing intermixed, one with another, without losing their identity. Nevertheless, to add a few species to the present number, is by no means an easy task; for before that can be effected, the genus, in all its forms, must be carefully studied, in order to determine whether *any* characters may be relied on as permanent, and if so, in what they consist. By way of illustrating my views, I enclose for your inspection two specimens; one, which I believe to *Sphagnum obtusifolium*, var. *γ. fluitans*, I found floating in water in Bulwell bog, Notts. The fruit is situated about the middle of the stem, which circumstance, if the plant is to be considered a variety of *S. obtusifolium*, will entirely neutralize any characters that might be drawn from lateral and terminal fruit. The other specimen I cannot refer to any species whatever. I found it abundantly in fruit on Oxtou bog, Notts., together with *S. cuspidatum* and *S. compactum* (*Bridel*), the latter as mentioned by Dr. Howitt, in his *Flora of the county*. Hoping that these remarks may gain for the subject the attention of persons who will be able to give more definite information, I conclude with enquiring whether any of your correspondents can tell me what is meant by *Sphagnum palustre*, so often referred to in geological books and lectures? — *Joseph Sidebotham; Manchester, December 21, 1843.*

441. *Note on Veronica Buxbaumii.* I have noticed *Veronica Buxbaumii* for several years past, growing in great profusion in a hop-plantation in this neighbourhood: although it is frequently disturbed by the tillage of the soil, it appears to be as firmly established as ever, and has now as much the appearance of being a true native as its two allies, *V. polita* and *agrestis*. — *Thomas Bentall; Halstead, Essex, January 4, 1844.*

442. *Note on the late flowering of the Fuchsia.* The extraordinary mildness of the closing months of last year has been universally remarked; and the daily and weekly papers, in noticing this peculiarity of the season, have more than once called the attention of their readers to such wonders as “roses blossoming,” “young potatoes of the size of marbles,” &c.; in addition, I may mention the following instance of a *Fuchsia* having renewed its youth, and strangely budded and blossomed about a week ago. The plant is kept in a flower-pot. During last summer it blossomed in its season, like other plants. In autumn its foliage withered and fell, and the plant reminded us of the approach of winter. But winter never came; and the *Fuchsia*, as if hopeless of his approach, began to bud and finally to blossom. At present it is clothed with leaves, — but leaves, not one of which is a third the size of its summer leaves. Its flowers, too, are curious. The corolla — small in any case, in this unnaturally so — retains its deep purple hue; but the beautifully developed calyx, instead of being bright scarlet, as it ought, is of a pale pink colour — almost white. — *Robert Dick Duncan; Vale of Almond, Mid Calder, Edinburghshire, January 6, 1844.*

443. *Note on Polypodium fragrans.* In reference to the question respecting *Polypodium fragrans* (Phytol. 839), perhaps I may venture to ask Mr. Newman whether, in “collecting evidence,” he has been reminded of an observation made by Rousseau, in his ‘*Lettres sur la Botanique.*’ I have not this work to refer to, but an extract taken from it a few years ago, is as follows. “*Je crois me rappeler, par exemple, qu’il s’y trouve quelques fougères, entre autres le Polypodium fragrans, que j’ai herborisées en Angleterre, et qui ne sont pas communes partout.*” There is no reference to the number of the letter, but I believe it to be one towards the end of the volume. Rousseau’s residence, while in this country, was at Wootton-hall, Staffordshire, a neighbourhood in which it is highly probable *Lastræa Oreopteris* would be found: and it was with a view of ascertaining this that the extract was made: and my attention was attracted to the subject, by a note in the 7th edition of Withering’s *Botany*, in which the editor,

after describing *L. Oreopteris*, says, "the fragrant scent of this species is supposed to have induced Hudson to imagine it the *P. fragrans* of Linnæus."—*M. Beever; Coniston, January 4, 1844.*

444. *Note on Polypodium fragrans.* In 'The Phytologist' for the present month (Phytol. 839), Mr. Newman puts the following question, — "What is the *Polypodium fragrans* of Linneus?" stating, at the same time, that Wahlenberg, Roth, DeCandolle, Sadler, Smith, Hooker, Dietrich and Babington appear to take no notice of it. Reference to Hooker and Greville's 'Icones Filicum' will prove that Mr. Newman is in error in supposing Sir Wm. Hooker to have omitted mention of this fern, as in vol. i. tab. 70, it is represented under the name of *Nephrodium fragrans* (*Polypodium fragrans*, *Linn.*, being given as a synonyme), from specimens collected by Capt. Parry in the Island of Igloodik, during one of his expeditions to the Arctic regions. I have in my herbarium a specimen presented by Miss A. E. Griffiths, gathered by her brother, William Griffiths, Esq. (who accompanied Capt. Parry) in Melville Island, which, though not so large, would yet be immediately detected as the same species. It appears also that Sir W. Hooker has described *P. fragrans*, *L.* in the Appendix to Parry's Second Voyage, and that Swartz, Willdenow, Sprengel and Richardson have noticed it. The object of Mr. Newman in putting this question, appears to be a wish to identify the *Polypodium fragrans*, *Lin.*, with either the *Aspidium Oreopteris*, *Sw.*, or the *Aspidium rigidum*, *Schkuhr*, and thus to apply the Linnæan name to one of our indigenous species. It is true that Hudson adopts this name, but not having a copy of his work, I cannot quote his characters, and hazard an opinion of my own as to their application. This however is of little consequence, as Sir J. E. Smith, in his 'English Flora,' gives Hudson's *P. fragrans*, with a note of interrogation, as a synonyme of *Asp. Oreopteris*, *Sw.*, and says that this latter plant "exhales, more or less constantly, a fragrant scent, whence perhaps Mr. Hudson might take it for *Polypodium fragrans* of Linnæus, which is a very distinct North-American species." If we refer to the description of *P. fragrans*, *L.*, as given in the 'Systema Naturæ,' we shall find it to be as follows. "*P. frondibus subbipinnatis lanceolatis: foliolis confertis: lobis obtusis serratis, stipite paleaceo.*" *Aspidium Oreopteris*, *Sw.*, will most certainly not answer to these characters, it being, according to Mr. Newman in his beautiful work on British Ferns, "pinnate, the pinnæ rather distant and pinnatifid, the pinnules rounded and slightly crenate;" so slightly crenate indeed, that the figures represent the pinnulæ as scarcely undulate. The question then becomes

narrowed to the *Nephrodium fragrans* of Hooker and Greville's 'Icones' and the *Lastræa rigida* of English botanists. Now to the first of these the Linnæan description alone strictly applies, both as to the form of the frond, "*lanceolate*," and the heaping together, "*confertæ*," of the pinnæ. Swartz describes the frond of *L. rigida* as ovato-lanceolate, which quite agrees with my specimens of the plant from Yorkshire and Lancashire: the pinnæ also are not closer than in the great mass of bipinnate *Lastrææ*. I would here remark that in the section of *Polypodium* in which *P. fragrans* is described in the 'Systema Naturæ,' the term "*confertæ*" is not employed, except with reference to the pinnæ of *P. fragrans*. These comparisons are, in my opinion, sufficient to prove that Linnæus applied the specific name of "*fragrans*" to the fern which is figured in the 'Icones Filicum' as *Nephrodium fragrans*. It is indeed true that difference of soil and temperature might produce such a change, as to cause both an approximation of all the pinnæ, and a shortening of the lower ones, so as to make the fronds of *Aspidium rigidum*, *Sw.*, correspond to two of the Linnæan characters, (as I have observed in *Asplenium lanceolatum*, *Sw.*); but I think we have no right to assume that the great founder of Systematic Botany took his description from an aberrant form, when we have a species whose normal characteristics so well agree with those given in the 'Systema Naturæ.' That *Lastræa rigida* and *Lastræa fragrans* are distinct types of the same species, no one who has compared the plants, side by side, will, I am confident, be inclined to admit: — the elongated acute triangular pinnæ of the former can never be converted into the oblong obtuse ones of the latter. An examination of the specimens of *Polypodium fragrans*, in the Linnæan herbarium would perhaps settle the question; and I would therefore advise Mr. Newman to avail himself of his means of access to the said collection, in order to obtain as much information as possible upon the subject. If these specimens agree with the Linnæan description, all doubt will be removed: if not, we must conclude that through mistake they have found their way into the collection, and we must consequently revert to the published characters. I am inclined to agree in the spirit of Reichenbach's observation, though not to participate in the sneer on the value of the Linnæan herbarium, when he says, "*Opera viri magni mundo communia sunt, herbarium fallax unico possessore gaudet.*"—*W. S. Hore, M.A.; Stoke, Devonport, Jan. 9, 1844.*

445. *Note on the Polypodium fragrans of Hudson.* The *Polypodium fragrans* of Hudson (quære Linn.) seems to be considered as a mere *nominis umbra* by all modern writers on ferns; and yet there is

satisfactory evidence that such a plant did formerly exist. Sprengel, in his work on the Cryptogamia (Kœnig's translation) thus characterizes the species. *Aspidium fragrans*. With bipinnate frond, the primary leaflets ovate-lanceolate, the secondary very narrow, sharp-toothed, and their lower surface thickly clothed with scales, and with the involucre of the spots of the capsules. The stem about one foot long is closely beset with broad chaffy scales. Now Sprengel was acquainted with this species from *specimens*, which he states he received from Aiton, who observed it was a native of England. A plant answering to the description did then *exist* at the time, and most probably in the Kew garden, although it is not introduced into the 'Hortus Kewensis.' Sprengel could not have confounded this fern with *Aspidium* (*Lastræa*) *rigidum*, which he describes in the work from which this description is taken, and much less with *Aspidium Oreopteris*, for he expressly censures Bolton for considering Hudson's *P. fragrans* as identical with his (Bolton's) *Polypodium Thelypteris* (*Asp. Oreopteris*). The last species smells exactly like orange-peel, whilst Sprengel's *Asp. fragrans* is stated to smell like raspberries, and to be a Siberian as well as British species. — *Henry Oxley Stephens* ; 78, *Old Market Street, Bristol, January 12, 1844.*

446. *Note on Cystopteris montana.* *Cystopteris montana*, recently described in 'The Phytologist' as a newly-discovered British plant, (*Phytol.* 671), is stated by Sprengel to have been found in Wales by Plukenet, who figured it in his 'Phytographia,' tab. 89, fig. 4, but I have not seen the figure.—*Id.*

ART. CXC VII. — *Proceedings of Societies.*

BOTANICAL SOCIETY OF LONDON.

November 17, 1843.—J. E. Gray, Esq., F.R.S., President, in the Chair.

Dr. Bromfield presented a specimen of a species of *Calamintha*, new to the British Flora, discovered by him in the Isle of Wight, (*Phytol.* 768).

Read "Notes of a Botanical Excursion in Warwickshire, Worcestershire, Wales, and Ireland," by Mr. S. P. Woodward. The first week, spent by Mr. Woodward in Worcestershire, afforded him very little scope for botanizing, the interest of the country being chiefly geological. The only ferns met with near Birmingham, were *Athyrium Filix-femina* and *Lastræa dilatata*, on the borders of Edgbaston pond; and in the vicinity of Kidderminster Mr. W. could not find even these. On the Clint hills *Malva moschata* and *Campanula patula* were the only conspicuous flowers in the hedgerows. These hills are of trap rock, but as they present no escarpments, and have no rills or ponds, they are entirely destitute of ferns. The limestone hills of Dudley-castle and the Wren's nest, appear to be in the same predicament, not even the *Polypodium* grows there, and on the old castle one solitary bit of *Ruta-muraria* was all Mr. W. could discover: *Cnicus eriophorus* is very abundant about the castle. *Lastræa dila-*

tata grows amongst the furze on the Rubary hill, which is a ridge of altered Caradoc sandstone flanking the Bromsgrove Lickey. The Abberley hills present more variety of soil and aspect, and consequently afford better botanizing ground. At a spring-head near Abberley church, *Oreopteris* and *Filix-femina* are in tolerable abundance; the brake is plentiful on the hills, and in a hedge near the Hundred-house, *Polypodium vulgare* and *Polystichum angulare* occur sparingly. *Lastrea spinulosa* grows near Great Witley, and *Equisetum Telmateia* is plentiful in a quarry within sight of the Hundred-house, conspicuous on account of its vertical beds of limestone.

Near Malvern, *Lastrea dilatata* and *Equisetum sylvaticum* abound in the woods, and *Polystichum angulare* on the banks of small ravines in the Wenlock shale. *Pteris* and *Lomaria* are also on the high ground, and *Ceterach* on the church. The Malvern hills are a range of trap rock, from 6 to 14,000 feet in height, and on their eastern flank which is least exposed to wind and sun and covered in many places with a talus of fallen fragments of rock, there is excellent accommodation for ferns. *Polypodium vulgare*, *Lastrea dilatata* and *Filix-mas*, *Athyrium Filix-femina*, *Asplenium Trichomanes* and *Adiantum-nigrum* are abundant, some of them very nearly to the summit of the hills. The principal flowers in the thickets were *Campanula Trachelium*, *Vicia sylvatica*, *Chlora perfoliata*, and the betony and foxglove; and upon the stone walls, *Cotyledon* and *Cardamine Impatiens*. Mr. W. gathered *Asplenium Trichomanes* again on the walls of the Cathedral-precinct at Gloucester, and on the walls and bridge near Crickhowell and Brecon, *Ruta-muraria* and *Ceterach* are abundant. Mr. W. believed these walls to be built with the limestone occurring in the middle of the old red sandstone series. *Filix-femina* is plentiful on the banks of the Wye and Towey. At Caermarthen Mr. W. saw *Adiantum-nigrum* and *Trichomanes* on many of the stone walls, and on the walls of Lord Dynevor's park near Llandeilo, the *Polypody* grew so luxuriantly as to make him very desirous of ascertaining whether it could be the Cambricum, which he had never seen or heard of growing except in gardens.

Passing over from Pembroke to Waterford, Dungarvan and Youghal, the aspect of the country is entirely changed. Instead of the rivers winding through rich corn-valleys and deep woods, one dreary expanse of grey rocks and purple heather is all that meets the eye often for many miles. Occasionally the country is intersected by deep glens, but they are seldom wooded; and both in the low boggy ground and on the hills, cultivation seems scarcely to produce any effect in softening the air of desolation spread all around. In the stone walls bordering the roads and separating the fields, *Filix-mas* and *Filix-femina* are everywhere seen; *Scolopendrium*, *Pteris*, *Lomaria*, and *Lastrea dilatata* are also very general. In the dry stony fields the brilliant spikes of *Lythrum Salicaria* seemed to have taken the place of the foxglove and nettle-hell of our English hedge-rows, and by its abundance and beauty attracted the attention and admiration of Mr. Woodward's fellow-travellers. At Glenbower near Youghal *Hymenophyllum Tonbridgensis* grows most luxuriantly, and *Trichomanes speciosum* is also said to have been found. During his stay in Cork, Dr. Thos. Power took Mr. W. to see the habitat of the *Trichomanes* in the Temple-Michael glen, at the top of Glen-mire. There is very little of the plant, and it is not known to fructify. In this glen there is sometimes a low scanty growth of the "Irish oak," not nearly so conspicuous however as *Euphorbia Hibernica*, *Bartsia viscosa* and *Gnaphalium rectum*, and *Carex pulicaris* grows in the glen and its vicinity; and here Mr. W. first met with *Lastrea dumetorum* growing along with *L. dilatata*, and presenting its usually very distinct appearance. *Hymenophyllum* grows scantily in this glen, and from exposure

is all dried up by the beginning of autumn. The other ferns noticed near Cork were *Scolopendrium*, *Asplenium Ruta-muraria*, *Trichomanes* and *Adiantum-nigrum*, *Lastrea Filix-mas*, *Athyrium Filix-femina*, *Polypodium vulgare*, *Lomaria spicant* and *Polystichum aculeatum*.

From Cork Mr. W. took the mail to Bantry, passing through Bandon, about four miles from which *Trichomanes speciosum* grows more strongly than near Cork, but still is always barren. About Bandon and Innishannon the *Polypody* grows abundantly on walls, attaining a very large size, and much of it, Mr. W. believed, would turn out to be prolific. About the rocky roads and salmon-streams of this neighbourhood, the common *Filix-mas* and *Filix-femina* grew more luxuriantly than Mr. W. had ever seen elsewhere.

Further on, at Clonakilty, *Erica vagans* and *Macckaii* are said to grow. Between Skibbereen and Bantry, and indeed in all the mountainous parts of Cork and Kerry, *Lomaria spicant* is the most abundant of ferns.

At Bantry Mr. W. took Mr. Newman's Irish Notes in his hand, and strolled out to see Lord Bearhaven's seat and park. The Irish variety of the *Polypody* was found growing as described, on the park-wall; and on ascending the hill from which Mr. N. watched the sunset over the bay, with its bright islands and mountain coast, he startled a flock of curlews from their daily resting-place, which is usually occupied at night by the rooks and jackdaws. In a belt of plantation below this hill there is abundance of *Polystichum angulare*, *Lastrea Filix-mas* and *dilatata*, *Athyrium Filix-femina* and *Lomaria spicant*; and the hill itself is half covered with *Pteris*, which does not usually abound, or attain its customary luxuriance in the south of Ireland. Following the example of Mr. Newman, Mr. W. took a boat and crossed the bay to Glengarriff; and the next day walked on to Kenmare, missing Hungry-hill and the *Menziesia polifolia*, as he was anxious to spend a day with Dr. Taylor at Dunkerran castle. In Glengarriff he found both species of *Hymenophyllum*, a profusion of *Osmunda*, *Lastrea dilatata* and *dumetorum*, *Lomaria*, *Filix-femina*, *Pteris* and *Polypody*, but no *Trichomanes*, although several botanists have tried to introduce it there. There are fine woods of birch, hawthorn, *Arbutus*, &c., around the hotel of Glengarriff; and the hills around are covered with peat to their summits, so as to render the new mountain road with its tunnel far from unwelcome. The rocks by the road-side were everywhere covered with *Polytrichum urnigerum* in fructification; and *Saxifragas* and *Sedums* were all out of fruit. Much of the grass on the rocks (*Festuca ovina*?) is viviparous; but except the blue *Jasione* and *Erica Tetralix*, there were few flowers remaining even in the beginning of August. Mosses, *Jungermannias* and Lichens abound everywhere. Dr. Taylor named the following:—

Trichostomum polyphyllum and *fasciculare*. Rocks.

——— *lanuginosum*. Mountain.

Entosthodon Templetoni. Rocky streams.

Hypnum flagellare, *brevirostre*. Woods.

Usnea florida, *Parmelia caperata*, *Sphærophoron compressum*, *Scyphophorus pyxidatus*, *Cenomyce uccialis*, *Jungermannia nemorosa*, *cochleariformis*, *albicans*, *Taylori* and *tomentella*.

Hypnum ruscifolium. Rills and springs.

Polytrichum commune, *gracile*, *aloides*, *juniperinum*. Rocks.

Weissia heteromalla. Ditto.

Dicranum flexuosum. Mountains.

In company with Dr. Taylor, Mr. W. went to Blackwater-bridge, which is a famous cryptogamic garden of Dr. T.'s; and there he pointed out species innumerable of *Jungermannia*, *Marchantia*, *Sticta*, *Hypnum*, *Hookeria*, *Pterogonium*, *Bryum* &c

The stream runs through a wooded glen, the rocks of which are everywhere overgrown with mosses and ferns, *Hymenophyllum*, *Asplenium Trichomanes* and *Adiantum-nigrum*, *Lastrea dilatata*, *Scolopendrium*, *Filix-femina* &c. *Euphorbia Hiberna* was in fruit, *Bartsia viscosa* in full flower in the fields, *Hieracium Taylori* &c., and in the hedges round Dr. Taylor's garden, Dunkerron, *Lastrea spinulosa* was found, the only spot in Kerry where Mr. W. met with it. On Dunkerron mountain Dr. Taylor finds *Lastrea dumetorum*, and an *Equisetum*, which is in Mr. Newman's hands to be named.

Every one who has been at Killarney will be rejoiced to escape the infliction of a description, and to those who have not yet visited its famous lakes and water-falls and the bays of the neighbouring coast, no description would give any adequate idea. Mr. W. was not particularly successful in finding ferns, his attention being constantly occupied by the novelty and grandeur of the views, and the multitude of other objects equally interesting. The following list must stand in the place of an account of the excursions which hundreds of visitors yearly take, and almost as many have written about.

<i>Trichomanes speciosum</i> . Torc cascade.	<i>Lastrea dilatata</i> . Woods.
<i>Hymenophyllum Tonbridgensis</i> and <i>Wilsoni</i> . All the waterfalls.	——— <i>dumetorum</i> . Woods, plentiful.
<i>Polypodium vulgare</i> , v. <i>serratum</i> . Woods.	——— <i>Oreopteris</i> . Mangarton.
The Irish var. <i>Muckruss</i> abbey.	——— <i>Filix-mas</i> . Common.
<i>Scolopendrium vulgare</i> and <i>Ceterach officinarum</i> . <i>Muckruss demesne</i> .	<i>Lomaria spicant</i> . Abundant.
<i>Osmunda regalis</i> . Lakes.	<i>Polystichum angulare</i> . <i>Muckruss</i> .
<i>Asplenium Adiantum-nigrum</i> . Var. β .	<i>Lycopodium alpinum</i> and <i>Selago</i> . Mangarton.
Gap of Dunloe.	<i>Isoetes lacustris</i> . All the lakes.
——— <i>Trichomanes</i> , var.	<i>Equisetum elongatum</i> . <i>Muckruss</i> .
——— <i>viride</i> . Mangarton.	<i>Polypodium Phegopteris</i> . <i>Muckruss</i> (Dr. Taylor).
——— <i>Ruta-muraria</i> . Walls, Cloghereen.	——— <i>Dryopteris</i> and <i>Lastrea Thelypteris</i> . <i>Muckruss</i> (Mackay).
——— <i>marinum</i> , (Newman).	

Mr. W. could not find *Aspl. marinum*. The plants in flower were: — *Hypericum Androsæmum* &c., *Scutellaria minor*, *Achillea Ptarmica*, *Euphrasia* with purple flowers, Mangarton, *Saxifraga umbrosa* and *stellaris*, *Orobanche minor*, *Muckruss abbey*, *Circæa Lutetiana*, *Lysimachia nemorum*, *Anagallis tenella*, *Veronica officinalis*, *Chamaedrys* and *serpyllifolia*, *Lotus corniculatus*, *Epipactis latifolia*, abundant, a few flowers remaining, *Calluna vulgaris* with white flowers.

Mr. Woodward afterwards visited Brandon hill, on the Dingle promontory, and gathered *Polystichum Lonchitis* and *Cystopteris dentata* in the clefts of the rocks near its summit; also *Asplenium Adiantum-nigrum*, *Trichomanes* and *marinum*, *Athyrium Filix-femina*, *Polypodium vulgare*, *Hymenophyllum Wilsoni*, *Lastrea dilatata*, *dumetorum* and *Filix-mas*, *Osmunda regalis*, *Lomaria spicant* and *Pteris aquilina*.

The plants in flower were *Carex Oederi* and *pilulifera*, which form great part of the herbage; *Juncus squarrosus*, *Jasione perennis*, *Tormentilla*, *Polygala*, *Utricularia minor*, the wild thyme, *Rhinanthus*, *Oxyria*, *Pedicularis palustris*, *Scabiosa succisa*, *Ranunculus Flammula*, *Hypericum elodes* very abundant, *H. pulchrum*, *Saxifraga umbrosa* in flower, *S. Geum* and *hypnoides* out of flower, *Aira flexuosa*, *Agrostis vulgaris*, *Veronica serpyllifolia*, *Lythrum Salicaria*, *Lycopus europæus*, *Angelica sylvestris*, *Silene maritima*, *Statice Armeria* (in flower on the summit of Brandon, 3150 feet

above the sea), and *Narthecium ossifragum*, a few flowers of which still lingered. *Pinguicula grandiflora*, the leaves of which spread out in yellow stars over the ground in every part of Kerry, was entirely out of flower. Mr. W. was not at the time aware of Mr. Moore's discovery of the *Trichomanes* at Mount Eagle, and was unable to spare a day for the search after *Adiantum* at Cahir Conree or *Sibthorpia* at the Conner cliffs. Passing up the Shannon to Lough Derg, Mr. W. noticed *Ceterach*, *Trichomanes* and *Ruta-muraria* on the stone walls and bridges; after which his botanizing was confined to the College and Glasnevin Botanic Gardens at Dublin.

November 29, 1843.—Seventh Anniversary Meeting. J. Reynolds, Esq., Treasurer, in the chair.

From the Report of the Council it appeared that 13 new members had been elected since the last anniversary; and that the Society now consists of 159 members.

The Report of the Herbarium-committee was read, and stated that many interesting British plants had been presented, including several species of *Carices* collected by the late Mr. G. Don, which were presented by Mr. S. P. Woodward. Specimens of *Carex paradoxa* (*Willd.*), *Borkhausia setosa* (*DC.*), *Neottia gemmipara*, *Convallaria bifolia*, *Statice rariflora*, and other valuable plants, had been received. Mr. Edwin Lees had presented a collection of British Rubi, comprising nearly all the species.

Numerous interesting Irish plants had been received from Mr. W. Andrews, including many duplicates of *Trichomanes speciosum*.

Distribution of Duplicates. — The parcels of plants sent to the members in return for their contributions had given much satisfaction: and in nearly every instance the Committee were enabled to send the return parcel within a fortnight after the receipt of the contributor's own parcel.

Since the printing of the Catalogue of British Plants now used by the members in marking their desiderata, several new species have been added to the Flora of the country, which, of course, do not appear in the catalogue. As far as these novelties can be obtained, the Committee will distribute them through the parcels sent out to contributors, together with any other specimens which may afford the opportunity for correcting errors of nomenclature, or in any way elucidating the Botany of Britain. For the common benefit of members it is particularly requested that contributors will send as many duplicates as they can of all such novelties.

Among the specimens now ready for distribution are the following. A few specimens of *Statice rariflora*, obtained through the kindness of Mr. Notcutt; an ample supply of the true *Crepis biennis*, presented by the Rev. A. Bloxam; the true *Primula elatior* (*Jacq.*), received from Mr. E. Doubleday, together with the varieties of *P. vulgaris*, which are often mistaken for the former. The true *Eriophoron gracile* (*Koch*), known to very few English botanists before the summer of 1842. *Linaria spartea*, naturalized at Walton, in Surrey. *Bromus commutatus* (*Schrader*), so very frequently misnamed *B. arvensis* (*Linn.*) Varieties of *Betula alba*, which are described as species by several botanical authorities. *Festuca loliacea* passing into *F. pratensis*; *Lolium multiflorum*, &c.

Label-Book.—The original labels sent with specimens are carefully preserved, and those which are not required for introduction into the reference-herbarium along with the specimens, will be fastened into a book, as a permanent record of the localities in which the specimens have been collected.

Local Herbaria.—Dr. Ayres has sent a portion of the Flora of Thame, Oxfordshire, and engaged to complete it; and a full set of the flowering plants of Esher, in Sur-

rey, has been collected, and will be sent to the Society as soon as they can be glued down to paper in the manner prescribed by the Committee. Other members are collecting the herbaria of their respective districts, and the Committee hope, next year, to report the addition of several local herbaria.

Foreign Plants. — The donations of foreign plants received during the past season far exceeds that of any former year. The Royal Horticultural Society of Cornwall has sent a very large collection of East-Indian plants, comprising specimens collected at Madras by Dr. Wight, and at Assam by Major Jenkins.

A very large collection of North-American plants had been received from Dr. Gavin Watson and Mr. R. Kilvington; and Mr. E. Doubleday had presented 300 species from Ohio. A collection of specimens from Western Australia has been presented by Mr. Turner; and Mr. Adam Gerard has sent some valuable plants collected at Sierra Leone.

Cryptogamic Collection, (Ferns). — British ferns have been received from various members; and in every instance where specimens have been received from localities not hitherto recorded in the collection, the most characteristic have been selected and introduced, in accordance with the principle laid down by the Committee, of extending the series to every locality that can be obtained for the rare species, and every county or district for the more abundant. It has also been made an object to ascertain the geological range of each, as well as its geographical distribution. The abundant supply of *Lastrea cristata*, *Asplenium lanceolatum*, *Adiantum Capillus-Veneris*, and *Trichomanes speciosum*, has enabled the Committee to distribute them to all members who applied for specimens.

Mosses, Lichens, Hepaticæ and Algæ. — The following species of mosses new to the British Flora, have been presented by Dr. Thomas Taylor: — *Trichostomum saxatile* (Taylor, MS.), and *Bryum recurvifolium* (Taylor, MS.); and the following new species of Hepaticæ: — *Jungermannia reclusa*, *fragilifera*, *germana* and *riparia* (all Taylor, MSS.): together with authentic specimens of the newly-determined species, — *Dicranum scoparium* and *D. Dillenii* (Taylor). Mr. G. H. K. Thwaites has sent a large collection of mosses, chiefly collected by him in the neighbourhood of Bristol, including many new species. Dr. Ayres has forwarded specimens of *Peziza cauteaulis* and *Hysterium rubrum* discovered by him in Oxfordshire.

In concluding their Report, the Committee called upon the members for renewed exertions to make the collection forming by the Society as complete as possible, and to render their herbarium a permanent standard for the determination of plants: and members and contributors are particularly requested to send monstrosities, and any specimens differing from the common form.

The Reports of the Council and Herbarium Committee were unanimously adopted; a ballot then took place for the Council for the ensuing year: when J. E. Gray, Esq., was re-elected President. John Miers, Esq., F.R.S., J. F. Young, M.D., and A. Henfrey, Esq., A.L.S., were elected new members of the Council in the room of G. Francis, Esq., H. A. Meeson, M.D., and Adam White, Esq., who retire from the Council in accordance with the rules of the Society.

Mr. J. Reynolds, Mr. G. E. Dennes, and Mr. T. Sansom, were respectively re-elected Treasurer, Secretary and Librarian.

December 13. — The President nominated Hewett C. Watson, Esq., F.L.S., and John Miers, Esq., F.R.S., Vice-Presidents. G. E. D.

THE PHYTOLOGIST.

No. XXXIV.

MARCH, MDCCCXLIV.

PRICE 1s.

ART. CXCVIII.—*Researches in Embryogeny.* By W. WILSON, Esq.

(Continued from p. 735).

THE following is a summary of what has already been published in the 'London Journal of Botany' for December, and is here added as a necessary sequel to what has already appeared in 'The Phytologist.'

Since the time when Dr. Giraud's article on *Tropæolum majus* was partially noticed, I have made that plant the subject of close examination; and the result is that I am compelled to dissent from Dr. Giraud's account in several particulars. It is especially objectionable because (contrary to the evident design of the writer) it lends undue countenance to the theory of Schleiden, in the erroneous statement that there exists a traceable mass of "conducting tissue of the style into the carpellary cavity as far as the exostome." In researches like these, it is seldom that the positive statements of other observers can be absolutely disproved; but here the error admits of demonstration. Dr. Giraud says concerning the "suspensor," that its upper extremity protrudes "through the apex of the nucleus and the micropyle," and that from this extremity a number of cells "hang loosely in the passage leading to the conducting tissue of the style, while the rest unite in forming a process which passes down the outer side of the ovulum within the carpellary cavity." Here we have the position of the supposed passage distinctly marked, as being *above the micropyle*; whereas it will be seen that the supposed "loosely hanging cells" must belong to a particular portion of the "suspensor" which never protrudes beyond the micropyle in the manner that it is stated to do. The curious structure and development of this part has escaped the scrutiny no less of Dr. Giraud than of Schleiden and other observers. In the following remarks I shall adopt the term suspensor for the body extending upwards from the embryo, though I am not satisfied that it is quite in accordance with the original views of Mirbel thus to apply it. Schleiden, in his attempt to account for the manner in which the suspensor gains egress from the coats of the ovulum (for there are really two of these surrounding the nucleus), invents a spurious theory, and gravely asserts that these coats become "obliterated" or undergo "resorption;" and thus the apex of the suspensor is laid bare; whereupon it assumes the form represented at fig. 3; the part *a* being directed

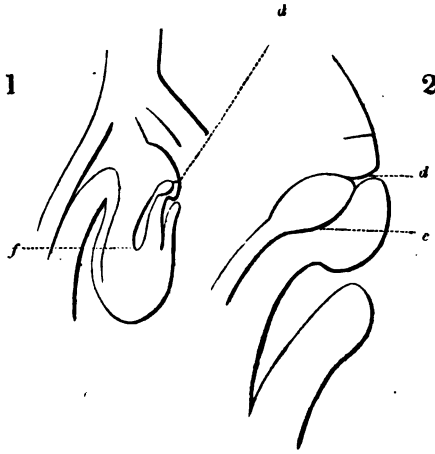


Fig. 1.—Longitudinal section of ovulum from a flower of *Tropaeolum majus* previous to fecundation, with the principal part of the carpellary integument removed, showing the micropyle *d*, and the embryo-sac *f*.

Fig. 2.—A portion of the same more highly magnified, showing the micropyle *d*, and the primary utricle *c*.

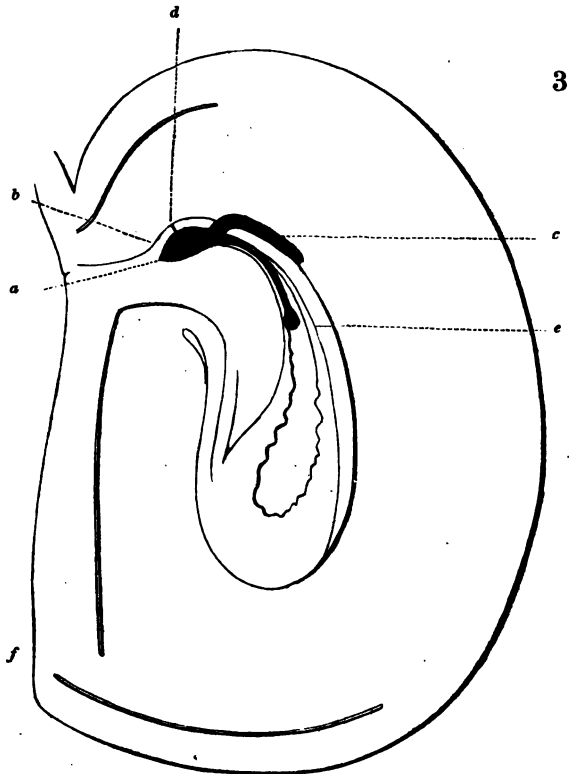


Fig. 3.—Longitudinal section of unripe seed soon after the protrusion of the suspensor; *c*, the posterior process; *a* the anterior process of the suspensor; *b* the swelled knob connecting both processes with the lower portion of the suspensor; *e* the embryo in a very early stage; *d* the micropyle; *f* the pore to which the process of maturity.

towards the axis of the flower. Dr. Giraud, on the other hand, as positively asserts that the suspensor passes out at the micropyle, through which "it may be drawn by a slight traction completely out of the nucleus, along with the suspended embryo." Both of these accounts are quite at variance with the fact. The swelled knob, *b*, never extends beyond the micropyle, but is in every stage included within the coats of the nucleus, and from this knob are sent forth two filamentous processes, of which only the posterior one (*c*) has hitherto been noticed. This process does not pass out at the micropyle, but perforates the coats of the ovule immediately below it on the outer side.

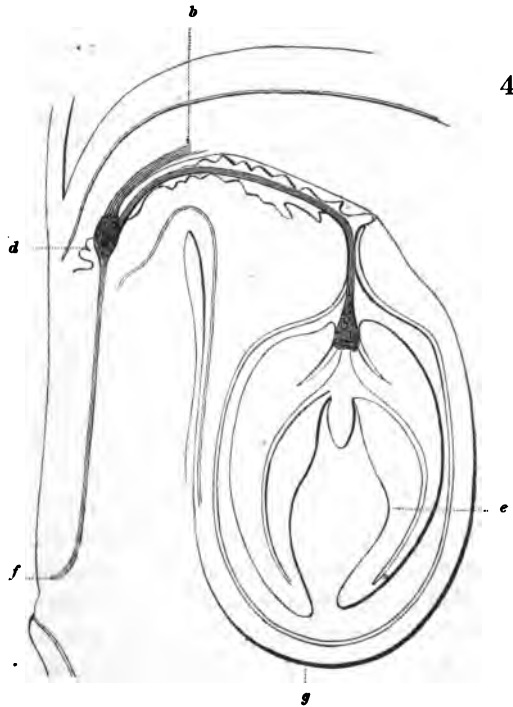


Fig. 4.—Longitudinal section of the ripe seed :—*d* the micropyle; *f* the extremity of the anterior process of the suspensor. The posterior process is continued from *b* to *g*; *e* the embryo.

The anterior process (*a*) first pushes its way through the substance of the neck of the ovule; then through what may be considered the placental tissue. It then reaches, or forms for itself, in the substance of the carpellum, at its inner angle, a canal which lies parallel with and very near to the common axis of the three carpella; and passing along this canal the process arrives at the lowest point of attachment of the carpellum with the receptacle where there exists a small pore. The carpellary integument would thus seem to constitute an essential

of the seed, and its removal before sowing would most likely prevent the seed from germinating; for it seems reasonable to conclude that the two processes of the suspensor exercise the function of radicles; and at least one of these would be broken off in the act of removing the carpellary coat. It is a curious circumstance that the ovulum in this genus has no free funiculus, and that its coats forming the primine and secundine are so blended with the rest of the tissue which connects the ovulum with the carpellum, that no positive line of separation can be detected in that part. Indeed it is only by an attentive examination of the micropyle that the existence of two coats can be clearly ascertained.

It is proper that I should notice here another somewhat mistaken view entertained by Dr. Giraud, who states that there exists before impregnation "a small elliptical cavity near the apex of the nucleus, having a delicate lining membrane formed by the walls of the surrounding cells: this cavity is the embryo-sac, and a minute canal may be traced leading from it to the exostome." It would be more appropriate to say that the *membranous lining* of the cavity constitutes the embryo-sac. The cavity, however, is not confined to the apex of the nucleus: its form and dimensions are represented at fig. 1, which exhibits a longitudinal section of the ovule and the contained nucleus. If the lining of this cavity be, as I suppose, the embryo-sac, the contained embryo with its suspensor must have a different relation to it from what has been hitherto advanced by either Schleiden or Mirbel; for about the period of fecundation the embryo forms a small elliptical body, very much smaller than the cavity in which it is lodged; it is indeed so minute as to be with great difficulty displayed under the microscope. Its position and relative size are dimly seen at *d*, fig. 1, and more clearly represented in the more highly magnified fig. 2. This rudimentary embryo is described in Dr. Giraud's paper as "a quantity of organizable mucilage enclosed in the embryo-sac." It is true that the whole of the nuclear cavity is lined with a lax delicate membrane, easily separable from the nucleus itself; and that at the time when the suspensor is about to perforate the coats of the ovule, this membrane may be traced from the apex of the suspensor to the bottom of the cavity, clearly disproving what Schleiden has asserted concerning the introversion of the embryo-sac by the intrusion of a pollen-tube.

I am at a loss to understand in what mode Dr. Giraud has been able to identify "the fovilla and its granules," which he records as having been found abundantly in the passage leading from the style to the exostome, at the time indicated by his "fourth period." If the

process *a* of fig. 2 be regarded as a kind of finger-post, it would lead to the conclusion that he has mistaken for fovilla the particles of amyloids which are found in abundance in the neck of the ovulum.

Warrington, January 12, 1844.

W. WILSON.

ART. CXCIX. — *Reply to Mr. Edmonston's 'Remarks on Botanical Classification.'* By PH. B. AYRES, Esq., M.D.

Thame, Oxon, January 20th, 1844.

SIR,

I have waited, until now, with the expectation that some more able correspondent of your journal would have replied to the remarks of Mr. Edmonston on the natural arrangement of plants; but as no one has come forward, I shall endeavour to answer his objections to that system.

With his first propositions, "that the present system of entirely dispensing with an introductory or artificial scheme, is not only wrong in theory and opposed to the principles of philosophical classification, but almost impracticable in practice;" and, "that a simple artificial scheme is absolutely necessary as an easy introduction to the study of the science, by which a sufficient knowledge of species may be gained to enable the student to turn to the more complicated generalizations of the other system;" — I in part agree. That an artificial scheme is necessary to an *easy* acquirement of the science, is tantamount to saying that an alphabetical arrangement is necessary to the finding easily any particular subject in a bulky Encyclopædia, or a good index to any other work of reference; and such is the artificial system of Linnæus to the vegetable kingdom. The assertion of the absolute impracticability of learning Botany without the assistance of an artificial scheme is absurd; inasmuch as species may be discovered by the natural system, although, I acknowledge, with greater difficulty. It is easier, for example, to find a species in any work on descriptive Botany, provided the name be known, by turning to the index, than to wade through the descriptions of classes, orders and genera to arrive at it. Exactly in the same manner is it easier to turn to the Linnæan index, than to wade through the long analyses of natural orders given in Lindley's 'Introduction to the Natural System.' With similar restrictions we may acquiesce in the third proposition, "that what was then (in the time of Linnæus) necessary for the state of botanical knowledge generally, is, I contend, still indispensable to students individually;" that is, a good index of plants!

From the next proposition I must entirely dissent ; namely, that "Nature creates species;" for it is easy to perceive that the term species is applied to an assemblage of individuals, which, from their great resemblance to each other, and from their capability of propagating their like, are called *species*. Were the *creation of species* allowed, I cannot see any rational objection to the admission that genera, orders, classes, &c. were created ; for what is true of a smaller assemblage may be true of a larger one. On the other hand, I contend that Nature simply created individuals capable of propagating their kind ; and if we trust to the Mosaic account of the creation, we shall see reason to believe that plants as well as animals were individually created. It is evident that the term species applies to one of the primary inductions from a comparison of individuals ; not that a species has any absolute existence, but is merely the conception or expression of the points of resemblance of a certain number of individuals bearing the greatest resemblance to each other. Another argument against Mr. Edmonston's view, is the fact of the existence of varieties ; a still lower induction from individuals !

Two other propositions are contained in the same paragraph of Mr. Edmonston's letter. 1. That it is difficult to establish the hypothesis that Nature has created plants upon a certain plan, and thrown them into classes, orders, genera and species : and—2. That this scheme of Nature is identical with one or other of the natural systems.

I cannot discover the difficulty that Mr. Edmonston conjures up against the proof that Nature has followed a plan in the creation of plants ; for the fact that a plan has been followed in their creation, is established by the simple fact, that plants are capable of being arranged and distributed into classes, orders, genera and species ; for had they been created at random, they would form a chaotic mass, and no such regular gradation of affinities could have been established. The very fact that one great group of plants possesses distinct sexual organs, while another is destitute of them ; and that the individuals belonging to these two great divisions possess many other points in common (as for example the presence of vessels in the sexual group), and that these are connected by certain oscillatory groups ; is sufficient evidence of a plan in the creation of plants. Unless a plan were followed, all attempts at classification would be futile.

By what I have said above I do not mean to infer that what we term classes, orders, genera and species were formed by Nature, for that would give these abstractions real existence ; they are indeed nothing more than creations of the mind of man ; they are the expression of the resemblances of plants one to another in a series of ab-

stractions or inductions. We cannot then say of any of our arrangements of plants, that they are natural in the sense that they have been created by Nature; but that they are natural in the sense that they bring together those plants that have the strongest analogies.

Now this brings me to the second proposition, "that this scheme (or plan) of Nature's is the same as one or other of the natural systems." Supposing it has been proved above that Nature has followed a plan in the creation of plants, and that consequently plants have such analogies to each other as to enable us to arrange them in species, genera, orders and classes; it is evident that that system will approach nearest to the plan of Nature, which exhibits the greatest number of analogies in its construction, and that brings together in its various groups those plants that bear the greatest resemblance to each other. Your correspondent asks whether any one of the natural systems corresponds or is identical with the scheme of Nature? He will perhaps think himself triumphant when I answer, *No*. But his triumph will be short when I in return ask him the following questions. Is our knowledge of Nature perfect, and are the general theories of any one of the natural sciences incapable of change? Does not the history of each science (save the Mathematical) show a series of changes in its general propositions? Has not all Natural Philosophy undergone great changes, and is it impossible that it should hereafter undergo still greater changes? If then all sciences have been and still are liable to change; why should not our science undergo such changes? But I shall be glad to be informed what botanists have considered any form of the natural system as a settled and perfect system; and who does not expect changes in system contemporaneous with the increase of our knowledge of the vegetable world? A botanist who thinks that *all* has been done, that the science is perfect, and should undergo no further alterations, I should think a fit inmate for a lunatic asylum!

The quotation from Dr. Lindley's 'Key to Botany' is not sufficiently ample; Mr. Edmonston should have added the next paragraph, when it would read thus: — "What we call the characters of plants are merely the signs by which we judge of affinity, and all the groups into which plants are thrown, are in *one* sense artificial, inasmuch as Nature recognizes no such groups. Nevertheless, consisting in all cases of species very closely allied to each other, they are in another sense natural." The addition of the last sentence very much alters our notion of Dr. Lindley's expression; for now he implies that Nature has not indeed created species, orders, genera, or other groups as such; but has imprinted such characters and affinities on plants, as

enable us to throw them into groups approximating more or less to the scheme of Nature, and in that sense natural.

Mr. Edmonston's remarks on the process by which botanical knowledge is or may be most easily acquired, are for the most part good ; still I cannot help considering him mistaken on some points. For example, he says that a finished botanist has no need of classification ; and here I differ from him. I grant that a botanist who knows all the British plants, does not need classification for the purpose of distinguishing species, since he knows them and their characters ; but still he needs it to show their analogies and affinities : and I contend that were a man capable of comprehending in one view the whole vegetable kingdom, with all the distinctions and analogies of species, the natural tendency of his mind would compel him to throw them into groups ; and supposing his knowledge perfect, he would construct a perfectly natural system. Hence the natural system will become more and more perfect by its progressive changes, and approximate more and more to a conformity with Nature. It appears to me that Mr. Edmonston, throughout his letter, lays more stress on the distinguishing of species from each other, than combining them into a coherent whole. He would consider Botany as an analytic rather than a synthetic science, or both combined.

Descending from the high ground we have hitherto occupied, I must be permitted to notice a few of the detailed objections put forward by Mr. Edmonston against the natural system. He says that there has never been a system which was not liable to exceptions, yet he expects that the natural system should be liable to *none* : and commencing with the three primary groups — Mono- Di- and Acotyledons, he discovers a few exceptions, and these he may be permitted to make the best of. But what would Mr. Edmonston say, if the same species (Nature only creates species) should be found usually with two, but occasionally with three or four cotyledons ? Would he separate the individuals and place them in the two primary divisions, although in other respects they perfectly resembled each other ? Yet this would be necessary to produce his idea of uniformity. Such a circumstance has been observed in *Sinapis ramosa*, and is figured in Decandolle's 'Organographie,' plate 53. It is true that Acotyledonous plants may be found among Dicotyledons ; indeed we should not expect two seed-leaves in a plant entirely destitute of leaves, like the *Cuscuta*, although in all other respects it may be and is accordant with our idea of Dicotyledonous structure. But if Mr. Edmonston will cast his eye over the following table, he will perceive that the in-

dividuals of these primary groups are distinguished in all parts of their structure.

ROOT.	STEM.	LEAVES.	PRTS. OF FLOWER.	SEED.
Endorhizous.	Endogenous.	Reticulate.	Ternary.	Monocotyled.
Exorhizous.	Exogenous.	Parallel Veins.	Quaternary or Quinary.	Dicotyledonous.
Heterorhizous.	Acrogenous.	Forked Veins.	Absent.	Acotyledonous.

Here the Monocotyledons are Endorhizous, Endogenous, with parallel-veined leaves, and a ternary division of the flowers; while the Dicotyledons are Exorhizous, Exogenous, with reticulate-veined leaves, and a quaternary or quinary division of the flower. Here is a set of characters which will clearly distinguish a Monocotyledonous from a Dicotyledonous plant, although some one or other of the characters may be departed from in a particular instance. Moreover, Mr. Edmonston forgets that the definition of the Dicotyledonous group includes those plants that have two or more *opposite* cotyledons; while that of Monocotyledons admits plants with two cotyledons, if they are *alternate*. Lindley, in his definition of Dicotyledons says, "Embryo with *two or more opposite* cotyledons;" and in that of Endogenæ or Monocotyledons, "Embryo with but one cotyledon, or if with two, then the accessory one imperfect and alternate with the other." After this explanation, the objection to the terms Mono- and Dicotyledons becomes a mere verbal quibble.

What is said above will also answer another objection of Mr. Edmonston's, "that the structure of the seed is too much used in the definitions of the natural school," and "that the characters of the primary divisions ought always, if practicable, to be taken from parts easily seen, or at least not requiring such delicate microscopical investigation as the natural system requires;" for if he finds a plant whose germination is exorhizous, whose stem is exogenous, whose leaves have reticulated veins, and whose floral organs are quaternary or quinary, he may be sure that it is a dicotyledon without an examination of the seed; nay, if he only observe that the stem is exogenous, the leaves reticulated and the parts of the flower quaternary or quinary, he will never be mistaken as to the group to which he ought to refer it; and these parts are, I imagine, sufficiently obvious.

But the examination of the structure of the seeds of plants is more-over absolutely necessary in any system where the affinities of plants are taken into account. Linnæus used the parts of the flower as the basis of his artificial system, as being the least variable of the parts of plants; and it must be allowed that the structure of the seed is even

less variable than that of the other parts of the flower. I can assure Mr. Edmonston from personal experience, that the dissection of seeds is by no means so difficult as he considers it; that a little practice will enable him to dissect most seeds; and that, except in very minute ones, a common pocket lens will be sufficient for his purpose. I grant that some patience is requisite to do this well.

We now arrive at a very grave charge against the natural system — the indefiniteness of its groups; and Mr. Edmonston has chosen Ranunculaceæ as the subject of his animadversions, finding no character so definite as the one stamen of Linnæus's Monandria. Now it is curious that the very indefinite characters of Ranunculaceæ may be included in a definition to which scarcely any (certainly not more than in the Linnæan classes) exceptions can be found. I give this definition from Lindley's 'Introduction to the Natural System,' p. 6. "Polypetalous dicotyledons with hypogynous stamens, anthers bursting by long slits, several distinct simple carpella, exstipulate leaves sheathing at the base, solid albumen and seeds without arillus." Lindley gives the following exceptions or anomalies. "In *Garidella* and *Nigella* the carpella cohere more or less. In *Thalictrum*, some species of *Clematis* and some other genera, there are no petals. *Pæonia* has a persistent calyx." Now does it not strike Mr. Edmonston as exceedingly improper that plants possessing a corolla should be placed in the same Linnæan genus with those in which it is totally wanting!! We must surely complain of the genus before we find fault with the order. I would suggest the revision of the genus to Mr. Edmonston.

In *Garidella* and *Nigella* it is true that the carpels are more or less coherent. I do not happen to have access to detailed descriptions of any species of these genera; but, if I am not mistaken, the degree of cohesion of the carpels varies very greatly in different species, so that in some they are almost distinct. In *Actæa* I find that the carpella are reduced to one, and that one has taken a baccate form, exactly as some Leguminosæ are drupaceous.

Mr. Edmonston has unfortunately fallen into the error of taking the detailed descriptions of the natural orders for their distinctive character; and he has found in the former that degree of indefiniteness which might be expected in giving a detailed account of the structure of a large group of plants. Mr. Edmonston, in criticising some expressions of Dr. Lindley, with reference to the two great systems, says,— "Now if it be the case that the student must go through the same process — examine the same parts — in the one as in the other system, it will be singular if the amount of knowledge is not equal. In fact

the examination necessary for the knowing the genus and species of a plant, after you have got at its class and order by the Linnæan system, gives as great an amount of information concerning the plant itself, as if this end were attained by the natural system, with this difference, that the information is far more easily acquired and the process not nearly so complicated."

Here I submit that Mr. Edmonston labours under a very grave error, from his want of appreciation of the objects of the natural system. It is true that the student may gain an equal knowledge of the plant itself as by the natural system; but when he has obtained that knowledge, what has he discovered of the relations of the plant to other plants, farther than the generic group. When he rises above that group, and comes to the orders and classes, what does he find but "combinations of disjointed things"—genera associated that disagree in every particular, excepting that they have the same number or arrangement of stamina and pistils, and even then, there are numerous exceptions to these numbers and arrangements!! If we consider plants in their affinities or properties, we shall find that the Linnæan groups are, for the most part, forced and unnatural, while the reverse is usually the case with the natural orders. In saying this, I do not mean to deny that there are numerous exceptions to the natural system, but as that system can never be perfect until the whole vegetable kingdom is known, these exceptions must still exist while man is less than omniscient!

I will conclude with, I fear, a rather long extract from Swainson's admirable treatise 'On the Geography and Classification of Animals,' which sets forth, in better language and more forcible manner than I am able to employ, the differences and uses of the two systems; at the same time remarking that Linnæus himself could not rest contented with his own admirable artificial scheme, but sketched out a plan for a natural one!

"What, then, is the difference between an artificial and a natural system? The first is for the ready discrimination of species; the latter for the elucidation of those resemblances which such species bear to others in all their varied and complex relations. The one stops where the other begins. We make use of an artificial system to become acquainted with the name of a species; and to learn all that has been written on its peculiar structure. We turn to the natural system, to know the probable station of this species in the scale of being, the affinities it possesses to others, and the analogies by which it is related and represented. Hence the perfection, as we have frequently intimated, consists in the clearness and precision of its subdivisions, and the facilities which it affords to determine the name of the object we are in search of. In this respect a good artificial system is to be judged by the same rules as those by which

we should decide on the merits of a copious index to a voluminous publication, for the purposes of both are the same: both are equally useful, and the merit of both lies in clearly directing the reader to the precise point on which he desires information. A good artificial system is, therefore, not only a useful, but even, in some respects, a valuable invention, requiring much more skill than is generally supposed; and it is, perhaps, much more adapted for general use than any other. The most admirable classification of this sort ever invented, is that denominated the sexual system of plants, by Linnæus. Many natural assemblages are preserved without any great violation of the principles on which he set out. This is always a great recommendation to an artificial system, yet it is by no means necessary to its formation. Natural affinities may be overlooked wherever they interfere with precision of arrangement, the first are secondary, the latter primary. We open an artificial system to come to the knowledge of a matter of fact; but if we wish to proceed farther, and to know how this fact bears upon *other* facts, we turn to the natural system. Such are the uses of the two methods of classification upon which we have been speaking, and such the theoretic distinctions by which they are separated. Between them, however, is a third sort of system, which, from combining artificial division with some regard to natural affinities, are generally termed mixed systems, or half-artificial methods, while others (and generally among this number are the authors themselves), have pronounced them *natural* arrangements."

I fear, Mr. Editor, that I have quite exhausted your patience, and shall now subscribe myself,

Your obedient servant,

PH. B. AYRES, M.D.

To the Editor of 'The Phytologist.'

ART. CC.—*An Account of a Visit to Teesdale in the Summer of 1843.*

By JAMES BACKHOUSE and JAMES BACKHOUSE, JUN.*

As an account of a visit made last summer by my father and myself to Teesdale and some adjacent parts, may interest the readers of 'The Phytologist,' I send thee some account of it.

We set out on the 28th of 8th month, and proceeded by railway to Darlington; from thence we went to Bishop Auckland, where we left the railway, and walked to Shull between Hamsterly and Wolsingham. There we found *Hieracium boreale*, *Scutellaria minor*, *Listera cordata*, *Vaccinium Vitis-Idæa*, *Pyrola media* and *minor*, *Lastræa Oreopteris*, *Polypodium Phegopteris* and *Dryopteris*, and *Equisetum sylvaticum*. In the native birch-woods at this place, the broad and narrow leaved varieties of *Convallaria majalis* occur; and a robust, upright and very hairy variety of *Veronica scutellata*? is found in ponds. *Dianthus Armeria* occasionally springs up here, where the ling has been fresh burned off. The day following we walked over the moors, by com-

* Communicated by James Backhouse, jun.

pass, to the High-force inn, Teesdale, a distance of about seventeen miles. We met with *Vaccinium Oxycoccos* and *Empetrum nigrum*, especially the latter, in many places. In a swampy place facing the south, about two miles from Shull, we found *Malaxis paludosa* in full flower. Probably the reason of many persons not finding this plant, when searching for it in known localities, is, that they seek it too early in the year. We also met with *Rubus chamæmorus* in several places. When we got within sight of the High-force inn, we descended into the valley of the Tees, near Winch-bridge, where we found *Hieracium rigidum*, *diaphanum*, *umbellatum*? *boreale* and *Lapeyrousii*, *Crepis succisæfolia*, *Galium boreale*, *Thlaspi alpestre*, *Pyrus Aria*, *Melampyrum sylvaticum*, *Trollius europæus* and *Equisetum variegatum*. We visited also the High-force waterfall that evening, near which we found the recently described *Poa Parnellii*, and saw abundance of *Potentilla fruticosa*, several *Hieraciums* and *Cnicus heterophyllus*. During most of the day grouse and curlews were to be seen on the moors.

After a comfortable night's rest at the High-force inn, where there is good accommodation, we set out in the direction of Micklefell: we crossed the low end of Widdy-bank, which is the locality of *Carex capillaris*, *Eriophorum pubescens*, *Bartsia alpina*, *Tofieldia palustris*, *Polygonum viviparum*, *Gentiana verna*, *Gymnadenia albida*, *Saxifraga aizoides* &c., all of which we had found the year previous. We then ascended the face of Cronckley-fell, where were *Allosorus crispus*, *Epilobium angustifolium*, *Arbutus Uva-ursi*, *Hieracium Lapeyrousii*, *pulmonarium* &c. Leaving the locality of *Dryas octopetala* and *Juncus triglumis* on our right, we crossed the top of the fell, where we found *Draba incana*, *Saxifraga hypnoides*, *Helianthemum canum*, *Hippocrepis comosa*, *Lycopodium alpinum* and *Selago* and *Gentiana verna*, the latter in great profusion. Here we saw a large flock of grouse—from thirty to forty. We next ascended Micklefell, which is the highest mountain in Yorkshire, being 2,600 feet above the level of the sea. *Saxifraga stellaris*, *Sedum villosum* and *Cochlearia groenlandica* were growing in the streamlets which descend from it. The top of Micklefell is limestone covered with grass, thickly interspersed with *Gentiana verna*. In the margins of the springs which emerge from under this limestone, *Epilobium alsinifolium* grows in abundance. Descending the west side of this mountain, we crossed Maizebeck and the Tees, below Cauldron-snout; near the junction of these rivers is a spring, filled with *Saxifraga stellaris*. We found three small plants of *Woodsia Ilvensis* on Falcon-clints. A large bird of prey was sailing round the tops of these crags, which we thought was

an eagle, but it did not come near enough to enable us to determine this with certainty. We then ascended the rocks by Cauldron-snout, and returned to our quarters across the back of Widdy-bank-fell, where, in a stream from under the limestone, we found *Juncus triglumis*, *Tofieldia palustris* and *Kobresia caricina*. The sides of this stream were adorned with *Bartsia alpina*, *Primula farinosa* and *Saxifraga aizoides*, down to its junction with the Tees. *Festuca vivipara*, *Sesleria cærulea*, *Thalictrum alpinum*, *Gnaphalium dioicum*, and several other interesting plants, also grow near Cauldron-snout. The year previous we found several large tufts of *Polystichum Lonchitis* on Falcon-clints. *Cystopteris fragilis* and *dentata*, *Asplenium viride* and *Trichomanes*, grow there abundantly, together with a profusion of seedling ferns, some of which, at first sight, might be taken for *Woodsia Ilvensis*. There we have also met with a deeply incised variety of *Asplenium Trichomanes*, but we never saw anything of *Asplenium fontanum*.

The next day, accompanied by our friend Jacob Allison of Cotharstone, we again crossed the back of Widdy-bank-fell, passed the head of the Weel, and crossed Crook-bourn into Cumberland; we then crossed the Tees into Westmoreland, and traversed the moors in the direction of Dun-fell. When in a straight line between the Greenburn lead-mine shaft and Dun-fell hush, we came upon the new locality of *Saxifraga Hirculus* (Phytol. 741), which was plentiful, but sparingly in flower. In a limestone hollow near this place, *Asplenium viride* was growing in profusion in the crevices of the rock, and at the bottom, among nettles, we found some large plants of *Polemonium cæruleum* in flower; this was new to the Teesdale district. From this place we crossed over the back of Meldon-fell to Highcup-scar,* an enormous ravine, about a mile and a half long, and 1000 to 1500 feet deep, margined by basaltic cliffs, surmounted on each side by limestone, topped with sandstone crags. After having walked about twenty miles, mostly over bleak barren moors, without a tree and with scarcely a trace of cultivation, the contrast of the scene at this place was very striking, as this great gulf opened to our view the rich fertile vales of the cultivated part of Westmoreland. *Sedum Rhodiola* and *Thlaspi alpestre* were growing in abundance in the clefts of the basalt, and in a deep gorge we had the pleasure of finding several very fine specimens of *Saxifraga nivalis*, which I believe had not previously been found in England. We then returned towards the High-

* Highcup-scar is generally named Eagle's chair in maps.

force inn, passing Maize-beck scars, where *Potentilla Salisburgensis* was abundant, and reached our quarters some time after dark, having extended our walk to about thirty miles.

The day following, taking Winch-bridge in our way, where we found *Potentilla Salisburgensis* (alpestris) and other plants, we ascended Holwick-scars, and crossed over the moors to the old locality of *Saxifraga Hirculus* (which we found in abundance) near the junction of the river Boulder and the Black-beck. We stopped at Cotherstone that night and the next day, and the day following rode by way of Bowes and Brough to Appleby. Near Brough we ascended Hellbeck-scars, which are limestone, where I found *Pupa Juniperi* (a land shell) in great abundance. This is the only locality with which I am acquainted in the north of England. Here we also found *Epipactis ovalis*, *Draba incana*, and a large-leaved variety of *Hieracium murorum*. The following morning, passing Dufton-pike, a curious conical mountain near the village of Dufton, we again examined Highcup-scar, but did not find anything fresh worthy of notice, except *Saxifraga nivalis* in another basaltic gorge.

The day being clear we had a beautiful view of the Cumberland mountains, and in the distance those of Dumfriesshire. That evening we returned to Brough on our way home.

JAMES BACKHOUSE, JUN.

York, 12th Month 22, 1843.

ART. CCI. — *Notes on Carex teretiuscula, C. paradoxa, C. paniculata, and Mr. Gibson's C. pseudo-paradoxa.* By GEORGE LUXFORD, A.L.S., &c.

SINCE the publication of my brief note on these plants in the December number (Phytol. 811), so many opposite opinions have been expressed with regard to the one whose specific identity and relations are more particularly the objects in dispute, and these opinions have emanated from botanists of such high authority, that I must confess I feel considerable reluctance to publish any further observations on the subject; and it is only in redemption of an express promise, and the belief that no harm can possibly arise from a continuance of the discussion, that I now venture to print the following remarks.

Before I begin, however, I may perhaps be allowed to give a short history of my acquaintance with the plant from the neighbourhood of Manchester, which has given rise to the enquiry; and this I am the

more anxious to do, since the opinions which I then gave were hastily conceived, as hastily expressed, and drawn from the examination of an insufficient number of specimens. I think it right to mention this, because there is a possibility that in more than one instance the opinions at that time privately given, may be found to be at variance with those subsequently formed.

Last summer I received from Mr. Sidebotham, of Manchester, specimens of some *Carices* on which he requested I would give him my opinion. At that time I happened to be much engaged, and was consequently unable to bestow on the specimens the attention which the subject required. Among them were examples of the disputed *Carex* from "Seamon's moss-pits;"* and these I could refer to no other species than *Carex teretiuscula*,† believing it to be that plant with its habit somewhat changed by local or other circumstances, in consequence of which the inflorescence had assumed a more elongate form than usual. Believing this, I was somewhat surprised to learn from Mr. Sidebotham, that some of his botanical friends, as well as himself, considered the plant to be the *C. paradoxa* (*Willd.*), which had then been recently introduced to the notice of botanists in Mr. Babington's Manual, as an established British species, found in Ireland. After strenuously endeavouring to discover a correspondence between the Manchester specimens and the description of *C. paradoxa* as given in the Manual, I began to think that the difficulty lay with myself solely, and that none was presented to others possessing better information on the subject. This led me, though reluctantly, to acquiesce in the opinion that it might be *Carex paradoxa*. Soon after this I was still more surprised to learn from Mr. Gibson, that the plant from Manchester was identical with the one to which he alludes as having "its fruit agreeing with Leighton's figure of the fruit of *C. paniculata*" (*Phytol.* 366), since I was not then aware that Mr. Gibson restricted the use of the term *fruit* to the *nut only*, and I had always applied the term to the perigynium and its included nut.

* I believe that this locality has not previously been given in 'The Phytologist,' by any of the botanists who have written on the subject. I now mention it without hesitation, since, from the circumstance of the locality being expressly stated on the labels accompanying all the specimens of the plant that have come under my notice, it appears to me that there has been no attempt to make anything like a secret of the matter.

† Certainly not to *C. paniculata*, as by an extract from one of my letters to Mr. Sidebotham, it appears I once wrote. That this was merely a *lapsus calami* is evident, I think, from the context. I cannot plead guilty to having ever considered this plant a variety of *C. paniculata*.

At a subsequent period I was much gratified by receiving, in a packet of plants which Mr. Sidebotham had the kindness to send me, some additional specimen of *Carex teretiuscula*, and of the plant which even then had led to considerable discussion. The receipt of these specimens, which were in fine condition, again brought the subject under my consideration; and a renewed examination almost confirmed my first opinion, that it could be no other than a slight variety of *Carex teretiuscula*. Then came Mr. Gibson's note on this plant under the name of *C. pseudo-paradoxa*, (Phytol. 778). In that note Mr. G. has mentioned the relationship of the plant with *C. paradoxa* (*Willd.*), and at the same time correctly pointed out its distinctness from that species. This, it will be remembered, was followed by Dr. Wood's note (Phytol. 809), wherein are minutely described the peculiar circumstances attending the growth of the plant, and which circumstances, in Dr. Wood's opinion, are sufficient to account for the various discrepancies between this plant and *C. teretiuscula*, which he considers the normal form. The very beautiful specimens of the two plants obligingly forwarded by Dr. Wood, together with others, equally beautiful, of *C. paniculata*, in addition to specimens of all the three previously in my possession, formed a valuable store of materials, both for examination and comparison. The note appended to Dr. Wood's communication (Phytol. 811) contained the result of a careful examination of the materials then at my command; and I regret that I have since been prevented from recurring to the subject. Want of space even now compels me to defer the conclusion of my notes to another number; when the remarks I may have to make on these Carices, will be illustrated by figures, which have been most obligingly placed at my disposal by Mr. Wilson. I may in this place, however, be allowed to state, that my opinion as to the specific identity of *C. teretiuscula* and Mr. Gibson's *C. pseudo-paradoxa* remains unshaken, nay, it is rather strengthened than otherwise by recent investigations.

Before I conclude I would express my thanks to Mr. R. Spruce of York, for beautiful specimens of *Carex paradoxa*, from Heslington fields, near that city; and to Mr. Wilson and the Botanical Society of London, for the loan of others collected at Westmeath, Ireland, by Mr. D. Moore.

G. LUXFORD.

2, Ebenezer Row, Kennington Lane,
February, 1844.

(To be continued).

ART. CCII.—*Two Botanical Visits to the Reeky Linn and Den of Airley, in April and June, 1842.** By WILLIAM GARDINER, JUN. Esq.

My first visit to the Reeky Linn was on the 13th of April. I left Dundee with the earliest railway train for Newtyle, and from thence walked the remainder of the way, crossing the hills behind Alyth, and coming down upon the Isla at the bridge of Craig. The only plant of interest noticed in my route was *Bryum albicans*, which grew abundantly on a wet bank between Newtyle and Meikle. In the same locality I found it again plentifully in May, with ripe capsules, and associated with *Dicranum varium*. I took up my abode in Mrs. Robertson's "public," which is conveniently situated within a quarter of a mile of the Linn, and after dinner went out to botanize. The Reeky Linn is a beautiful and picturesque waterfall on the Isla, at the head of the Den of Airly, and about four miles above the castle. The water takes three distinct leaps, and throughout its progress foams like a boiling cauldron, and meeting at the base of the rocks with a jutting cliff which obstructs its fury, a quantity of it is dissipated in vapour, which, rising in the air, seems like a mist or smoke (*Scotticé* "reek"), hence the name that has been bestowed upon the fall. The vicinity of such a place, from abounding in moist rocks, is always rich in vegetation, and here, though too early for most flowers, I reaped a luxuriant cryptogamic harvest. *Sticta sylvatica* covered the rocks in many places, and large patches of the elegant *Jungermannia pubescens* were intermingled with *J. platyphylla* and var. *β. major*, *Hypnum myosuroides*, *commutatum* and *prælongum*, *Anomodon viticulosus* and *curtipendulum*, *Bartramia Halleriana* and *pomiformis*, var. *β. major*, and the lovely *Neckera crispa*. Here and there tufts of *Didymodon Bruntoni* showed themselves profusely in fructification, and, peeping from among them, the delicate calyptræ and bright tawny capsules of *Encalypta ciliata*, and the graceful little *Hypnum pulchellum*. The beautiful *Hymenophyllum Wilsoni* was here, as elsewhere, associated with *Jungermannia spinulosa*. On the banks, chiefly growing on sandy deposits, were *Bryum punctatum*, *rostratum*, *marginatum*, *turbinatum*, *ventricosum* and *hornum*, *Hypnum palustre* and *uncinatum*, *Trichostomum aciculare*, *Dicranum flavescens* and *adiantoides*, *Orthotrichum rupicola* and *Didymodon rigidulus*. Still closer to the water, in shady nooks, dwelt *Marchantia* (*Fegatella*) *conica* and

* Read before the Botanical Society of Edinburgh. Communicated by Mr. Gardiner.

hemisphærica and *Jungermannia epiphylla*; and, bathing in its liquid freshness, floated the dark branches of *Cinclidotus fontinaloides*, and *Grimmia rivularis*, (*Brid.*). Tufts of the elegant *Didymodon capillaceus* looked out here and there from the crevices of the rocks, with, more sparingly, *Bryum androgynum* and *Hedwigia æstiva*. Some of the rocks were encrusted with *Lecanora tartarea*; *Squamaria hypnorum* appeared in several places, and various *Collema*, particularly *C. nigrescens* and *lacerum*, attached themselves to the exuberant mosses. The trees were adorned with a profusion of *Orthotrichum crispum*, *Jungermannia complanata* and *dilatata*, *Ramalina fastigiata* and *fraxinea*. On the moist rocky banks that margined the stream, various *Jungermannia* were abundant, and I culled, among others, *J. Lyoni*, *furcata*, *excisa*, *multifida*, *albicans*, *nemorosa*, *undulata*, and, more interesting than all, *J. Blasia* in fructification, a rarity amply rewarding my day's exertions.

I next morning breakfasted early, and hastened again to the Linn. Crossing the Isla by the bridge of Craig I went down the north side of the stream, and viewed the waterfall from a variety of points, from all of which the eye feasted on pictures of varied grandeur. The shadows of night had departed, and all was now distinct. The sunlight sparkled on the foamy Linn, and seemed to penetrate the deep pool beneath, while the wild cavern on the southern side opened its dark jaws, and displayed a confused mass of the wrecks of fence and woodland which it had gorged in flood and storm. In the upper air now floated the lark's sweet melody, and the thrush, from the yet almost leafless trees poured its matin song. Wood anemonies and primroses were profusely scattered over the rocky and wooded banks; and the thickly springing verdure on every side gave promise of a summer luxuriance of vegetation. And as I thus revelled in the beauty and magnificence around me, and thought of the bright and sunny future, I felt with the poet, that —

“From Nature and her changes flow
An everlasting tide of joy.”

My walk down the den of Airly, from there being no regular footpath, was rather fatiguing, but the rich succession of wild and rugged scenery, varying at every step, proved a more than sufficient equivalent. And I also added to my former stores, *Anomodon viticulosus* in fructification, *Hypnum curvatum*, *triquetrum* and *velutinum*, *Verrucaria gemmata* and *Adoxa moschatellina*. The vicinity of the castle was reached by noon, and at the base of the rock on which it stands *Hypnum atro-virens* was picked, and a specimen or two of *Equisetum*

Mackaii? close to the water; but *E. hyemale*, which grows here abundantly, was all cropped. Further down the Den, among overhanging rocks, *Bryum androgynum* was plentiful with little heads of gemmæ, and *Tetraphis pellucida* bearing gemmiferous cups, and at its foot, on a marshy bank, *Chrysosplenium alternifolium* displayed its curious flowers. Well loaded, I for this time bade adieu to Airly, and after a long smart walk reached Newtyle in good time for the last train.

My second visit to the Linn was on June 24th, when summer was glowing in all her loveliness. I followed the same route as formerly, and in shallow pools on the "market-moor" of Alyth collected fine specimens of *Pilularia globulifera*. The hedge-rows between Meigle and Alyth were bright with wild roses that perfumed the air, and abundance of *Galium cruciatum* shot up through their verdure: and upon the hills beyond Alyth, *Gymnadenia conopsea* and *Polygonum viviparum* were in luxuriance. The "public" was reached in time for tea, and I botanized about the Linn till nearly 10 o'clock. The same roar of rushing waters greeted my ear as before; but instead of the leafless trees, I now walked under a green umbrageous canopy, through which swelled at intervals the deep-toned music of the ebon bird of evening. My spring hope was now realized, for every crack and crevice of the rocks, every nook and crannie, bank and brae, was loaded with herbage and flowers. *Galium boreale* was abundant, and *Meum Athamanticum* I never gathered in finer condition. *Solidago Virgaurea*, *Crepis paludosa* and *Hieracium murorum* var. *γ. Lawsoni*, reared their golden blossoms from many a fissure in the cliffs, and the silvery foliage of *Alchemilla alpina* adorned the rocks. *Geranium pratense* was plentiful, and with *Carduus heterophyllus*, and the glowing flowers of *Lychnis diurna*, gave a flush of beauty and brightness to many a spot. *Valeriana sylvestris*, *Stellaria holostea*, and a host of other common though beautiful things, crowded on the attention from every side. The cryptogamic tribes were almost smothered by the proud ambition of the higher orders of vegetation, but I still was enabled to add several to my former list, among which the more interesting were *Peltidea venosa*, *Nephroma resupinata* and *Trichostomum polyphyllum*.

On the succeeding morning I gathered on the northern banks a profusion of *Orobis sylvaticus* and *Melampyrum sylvaticum*, and further down the Den, *Melica nutans* and *uniflora*, *Carduus heterophyllus* &c. But the stormy threatenings of the morning were soon followed by a heavy rain, which continued almost without intermission during the remainder of the day, and a thorough drenching to the skin tend-

ed in some degree to cool down my botanical enthusiasm. I searched about, as well as I could under the circumstances, for *Orobus niger*, but without success, and in vain looked for the "wet rocks above the castle," where the *Timmia* grows. In fact, by the time the foot of the Den was reached, I was as wet as if I had come down the Reeky Linn and swam the Isla all the way. But my vasculum had been well filled, and moreover I had the consolation of having chivalrously suffered in a noble cause,—even in the cause of the bright and beautiful Lady Flora.

WILLIAM GARDINER.

Dundee, February 7, 1844.

ART. CCIH.—*Varieties.*

447. *Method of arranging the Cryptogamia in a Herbarium.* Many excellent methods of collecting and arranging herbaria have appeared in the pages of 'The Phytologist,' but as these all relate to the Phænogamous plants, I trust the following hints respecting the Cryptogamic tribes — Musci, Hepaticæ and Lichenes, may prove interesting to some of your readers. The more general mode of forming and arranging herbaria for mosses &c. seems to be that of glueing the specimens to the paper, taking care that this shall be of a sufficient transparency and whiteness, that the plant may be examined on holding it up to the light. Now this method is attended with much inconvenience; the different parts of these tribes are extremely minute, and require very careful investigation, the previous application of water is also absolutely necessary to most or all species. Can this be done to a specimen fastened on the paper, without detriment to its texture; and supposing water to be applied, may not the microscope disclose perhaps the most essential parts buried in a mass of glue? The remedy is very simple. Take half a sheet of stout foolscap, and divide this into quarters, which will be suited for the larger mosses. Again, these quarters halved will form another very convenient size. The half sheets divided into thirds, and these halved, will constitute a most useful size for the genera *Hypnum*, *Bryum*, &c. Other forms may be made according to the taste and wants of the collector. Now fold each of these divisions lengthways, so that the under side shall appear three-eighths of an inch beyond the upper: turn this border upon the upper edge, and do likewise with the two ends of the folded paper, you will then have a case somewhat similar to those in which a nurseryman encloses seeds for sale. These cases are to be glued to

paper formed by quartering half a sheet of foolscap, and on each quarter can be laid three or more of the cases (except those of the largest size, two of which will fill the paper). The species may now be distributed according to their respective sizes, and one paper will be allotted to each species, thus leaving a reserve for varieties, and specimens from different localities. The names will be written on each of the cases, and the whole formed into fasciculi, with the generic names outside; two or more fasciculi may be allowed for the more numerous genera. A herbarium formed according to this method is always neat, and easily referred to; the specimens may be taken out of the packets, examined and replaced without incurring any risk of injury. Extra papers can always be added when required. Very little trouble is necessary for drying mosses, *Hepaticæ*, &c. Specimens should generally be moistened previous to the application of pressure. Old books will be found a convenient substitute for loose paper: the specimens should be placed between the leaves and left untouched till thoroughly dry, nor need they be removed except when required. As directions are always much more easily written than understood, and fearing this might be applicable to the above, I gave them to a lady, requesting that she would put them in practice; and in a very short time, to my great satisfaction, I beheld many papers arranged exactly, though perhaps with greater neatness, like those in my own herbarium. — *F. Townsend; Ilmington, Shipston-on-Stour, January 16, 1844.*

448. *Notice of a Carduus found near Saffron Walden, Essex.* The following is a brief description of a curious variety of *Carduus* (*arvensis*?) found in the autumn of 1843, about four miles from Saffron Walden; it was growing by the road-side, on a poor clay soil, in the neighbourhood of a wood. Only two plants of it were in flower, one of which was spreading and much branched, the other small, but presenting similar characteristics. Near them *C. arvensis*, *acaulis* and *lanceolatus* were growing abundantly. Root creeping: stems much branched, about two feet high, leafy and woolly: leaves nearly similar to those of *C. arvensis*: flowers numerous, on separate stalks, as large as those of *C. acaulis*, and very similar in colour; calyx-scales mostly green; pappus rather short. In general habit it agrees most nearly with *C. arvensis*, but differs in its spreading, woolly stem, in its flowers being thrice the size, and of a crimson colour; in the calyx-scales being less coloured, and in the shortness of the pappus. From *C. acaulis* it differs in its size, *bushy character*, and in its *leaves*; also in its numerous flowers; but agrees in the colour and size of its

flowers and its woolly stem. Specimens of it have been shown to several eminent botanists, who have expressed very different sentiments respecting it, but most of them have considered it an interesting plant, and a form which they had never before seen. One is of opinion that it is an instance of *Carduus arvensis* being diœcious, this plant having the stamens more largely developed, which might account for the difference in the length of the pappus. Another considers that it has nothing to do with *C. arvensis*, but is *C. acaulis*, β . *dubius* of Willdenow's 'Species Plantarum,' and *C. caulescens* of Persoon. A third would give it the name of *acaulis*, had not the stems been of such a height, although he thinks the leaves more like *arvensis*. A fourth is ready to suppose, that it must be a hybrid between *C. acaulis* and *arvensis*, the flowers and hairiness of the stem bringing it exactly to the former, and the leaves and size agreeing with the latter. Several others have expressed opinions similar to one or other of those given above: and when such a difference exists among the most competent judges, I feel unwilling to hazard a sentiment, but the first explanation does not appear by any means to account for the whole of the very striking differences between this plant and *C. arvensis*; with the second I do not feel able to unite, because although *C. acaulis* has been frequently found caulescent in this neighbourhood, and I have a specimen of it gathered last autumn, with a stem *thirteen* inches in height, yet it always preserves, as far as I have seen, its general distinctive characters, and presents a very different appearance to the plant under consideration. I fear that there are not sufficient distinctive peculiarities to constitute it a separate species, and therefore the only other alternative seems to be to consider it a hybrid between *C. arvensis* and *acaulis*, which, though an uncommon occurrence in nature, is by no means an impossible one. Perhaps some of your correspondents may have seen a similar plant, and be able to decide the question, or some clearer light may be obtained after closer observation of it next season. — *G. S. Gibson; Saffron Walden, January, 1843.*

449. *On the dispersion of the Seeds of Oxalis Acetosella:* I think it is not generally known that *Oxalis Acetosella* has the power of projecting its ripe seeds to a considerable distance from the plant. Many of our native plants possess a similar power, such as *Impatiens*, *Cardamine*, *Ervum*, *Ulex*, and other *Leguminosæ*: in all these the expulsion of the seeds is effected by the rapid opening and curling up of the valves of the capsule; in the *Leguminosæ* the two valves become spirally twisted, in *Cardamine* they form a flat coil. In *Oxalis*,

however, the seeds are ejected, not by any movement of the outer valves of the capsule, but by a curious internal bag in which each seed is enveloped. The capsule consists of five cells, each containing one seed, and having an opening at the side. Each seed is enclosed in a closely fitting semitransparent skin; when ripe this little skin acquires the projecting power, having a strong inclination to turn inside outwards, which, continually increasing, ultimately causes a small fissure at the top, and immediately this is effected, the bag rapidly inverts itself, and the seed is thrown out *with a crack* through the opening provided for it; and sometimes the bag itself is thrown out by the violence of the movement, but generally it remains in the mouth of the cell.—*Joseph Sidebotham; Manchester, January 10, 1844.*

450. *Note on Veronica triphyllos.* While examining lately one or two very fine specimens of *Veronica triphyllos*, from the neighbourhood of York, with which I was favoured by my friend Sylvanus Thompson, Esq., I was struck with the great discrepancy between Hooker's description and these specimens. Hooker arranges this plant in the last section of the genus, having the "flowers axillary—solitary," whereas my specimens have the flowers in *terminal racemes*, exactly as in *V. alpina*, *serpyllifolia*, and others of the first division of the genus. Hooker indeed says of *V. triphyllos*, — "flowers subracemose," so that its being placed in a section having axillary solitary flowers, may arise from inadvertence. I may remark that the only other specimen of *V. triphyllos* in my collection, and which I owe to the kindness of Sir W. Hooker himself, shows exactly the same mode of inflorescence as in the Yorkshire specimens above alluded to. I quote the third edition of the 'British Flora,' perhaps the error may be corrected in a subsequent edition, to which at present I have no access. — *Thos. Edmonston, jun.; Baltasound, Shetland, January 27, 1844.*

451. *Villarsia nymphæoides.* As I am not acquainted with any recorded Scotch habitats of this beautiful plant, it may perhaps interest your readers to know that I gathered it in August, 1840, in a large mill-pond near Glasgow, where it was first observed by Mr. W. R. Murray of Edinburgh. The plant grows in great abundance in this station, intermixed with *Potamogeton*, *Myriophyllum*, and other aquatic plants. I regret I cannot give a more explicit description of this station, from my ignorance of the localities round Glasgow, and it was so dark when we gathered the plant, that we both took only a specimen a-piece as *Nuphar lutea*; and thus we did not pay that attention to the station that we should otherwise have done. The plant

has every appearance of being as indigenous as any of the plants among which it grows. I rather think the pond in which it grows was to the westward of the town; it was large and deep, and the Villarsia could only be reached in a boat.—*Id.*

452. *Carex boenninghausiana*. I inclose you a specimen of the Crichton-castle *Carex* alluded to in my List of additional Edinburgh Plants (Phytol. 407), and I think you will agree with me in considering it *C. remota*. Since reading the remarks by Mr. Luxford (Id. 650) and Mr. Gibson (Id. 779), I have carefully examined my numerous specimens from Crichton-castle, gathered at different times, and feel quite convinced of the correctness of my former opinion, that all I had met with in that station were *C. remota*, and none agreeing with the description of *C. boenninghausiana*: some of the Edinburgh botanists were indeed of opinion that my specimens were really *C. axillaris*, and I was inclined to think the same, or rather, that *C. remota* and *C. axillaris* were undistinguishable; for I could perceive little difference between the Crichton-castle plants and what I conceived to be authentic specimens of *C. axillaris* in my herbarium. Shortly afterwards, however, I became acquainted with the *true C. axillaris*, specimens of which I owe to the kindness of my valued correspondent, Dr. Wood, when I at once perceived that they were different both from the Crichton-castle and all other specimens called *C. axillaris* in my collection; and consequently, specimens from eight stations had, to my great disappointment, to be handed over to the *C. remota* sheet. Thus Dr. Wood's specimens stand in my herbarium as the sole representatives of *C. axillaris*, and to these I trusted in comparing my Edinburgh specimens, and in referring them to *C. remota*. I only know *C. boenninghausiana* by Mr. Luxford's and Mr. Gibson's notices, as no work I have access to at present contains a description of it. I would therefore be much obliged if you would examine the specimens now sent, and report. I make these remarks as I think *C. boenninghausiana* must be very rare in the Crichton-castle station, for I very carefully examined all the Carices I could find near the place in hunting after *C. axillaris*, but never found anything nearer it than the plant now sent.—*Id.*

[The specimens sent by Mr. Edmonston are all referrible to *Carex remota*.—*Ed.*]

453. *Note on Cetraria sepincola*. A few days ago I found some specimens of *Cetraria sepincola* near the west side of the island (Unst). I had not previously seen it in Shetland, and indeed it is not, I believe, a common plant anywhere in Britain. The specimens were rather small and without apothecia: they were accompanied by Ra-

malina scopulorum and farinacea and other lichens. Hooker, in his British Flora, says that he has never found Cetraria sepincola but on wood, but these specimens were found on a block of mica-slate.—*Id.*

454. *Remarks on Dr. Ayres' opinion of the Vaucheria.* Allow me a few words on the Vaucheria. Your correspondent Dr. Ayres (Phytol. 749) seems to wish to annihilate the genus, principally, it would appear, because Vaucher refers his Ectosperma (Vaucheria) terrestris to Protonema velutinum (*Agdh.*), and which latter is now believed to be a rudimentary moss. I am afraid our Algologists will scarcely consent to this summary mode of dealing with the genus Vaucheria, and I think Dr. Ayres can scarcely be acquainted with the V. terrestris of our botanists, or he would not follow Vaucher in confounding it with Protonema velutinum. That the whole genus Protonema is composed of the commencement of other Cryptogamia, chiefly mosses, is, I think, generally agreed on by botanists; but that "the Vaucheria are the rudimentary states of the mosses, and that the ovoid vesicles are analogous to granules, and reproduce the primordial state of the moss," is surely an untenable position. What a splendid moss must it be, whose byssoid commencement is one or two feet long, and as stout as a Chara! — yet if Dr. Ayres' views are correct, such is V. dichotoma; and where have the *salt-water* mosses come from to produce V. marina and V. velutina? If Vaucheria is denied a place as a separate genus, so I suppose must Bryopsis and Codium, for these genera are very closely allied to Vaucheria, indeed it is very difficult to separate the latter most singular genus from it by a definite character. As I am on the subject of these Cryptogamia, permit me a word on the plants associated with the supposed genus Protonema in the group Byssoidæ of the Confervoidæ,—*Hooker &c.* (Chlorospermæ, *Harvey*); these consist of the genera Byssocladium, Mycinema, Chroolepus, Trentepohlia, Protonema, Hygrocrocis and Leptomitus. The whole genus Mycinema appears evidently to be altogether composed of imperfect Fungi, probably Thelephoræ, and Dr. Ayres and others refer M. phosphoreum to a not uncommon state of Auricularia (Thelephora) cærulea. If Chroolepus be retained in the Algæ, Monilia, Helmisporium and many other genera must be removed thither from the Fungi; surely however their structure is completely that of the latter tribe, and Arnott, Carmichael, Hooker, and other eminent Cryptogamists, are of this opinion. It seems to me likely that the Lichen heterophyllus of Smith (Eng. Bot. 2246), a plant which has occasioned considerable perplexity, and which is doubtfully referred in the 'British Flora' to Cornicularia (*Ach.*), is a species of Chroole-

pus or an allied genus. *Hygrocrocis* and *Byssocladium* should surely be classed near the *Mucors*: *Leptomitis clavatus* cannot, by its habitat (dead animals), be an Alga, (Br. Fl. 385): *L. minutissimus* is stated to be the fibrillæ so often found besetting the apices of the *Polysiphonæ*, (Brit. Flor.): *L. lacteus* (*Conserva lactea*, *Dillwyn*) seems a doubtful plant, but if an Alga, would surely rank better with the *Gloiocladæ*, perhaps near *Chætophora* or *Rivularia*. How *Trentepohlia* is arranged in this tribe, I cannot understand; its affinity is surely with *Calithamnion*, *Griffithsia*, &c. among the *Ceramieæ*, indeed I cannot distinguish authentic specimens of *T. purpurea* from *Calithamnion Rothii*; and Hooker says "I am almost inclined to think it may be that species altered by growing in situations where it is only occasionally wet with salt water." I have thrown out these hints in the hope of eliciting some opinion from better Cryptogamists than I can pretend to be.—*Id.*

455. *Note on Equisetum umbrosum.* With respect to your correspondent Mr. Gibson's enquiry (Phytol. 680), whether *Equisetum umbrosum* or *E. arvense* "be the more glaucous of the two," I may remark, having gathered both plants, that Francis is correct in saying that the former is the more glaucous plant. The passage referred to in the 'British Flora' seems likely to be an error of the press, for the light green glaucous colour of *E. umbrosum* is a very apparent and remarkable character, and which distinguishes it, even at a distance, from any other British *Equisetum* that I am acquainted with.—*Id.*

456. *Note on Hieracium hypochæroides, in reference to Mr. Watson's Notes.** I now give the following descriptions of *Hieracium murorum*, *pulmonarium* and *maculatum*, from Smith's 'English Flora.'

"*H. murorum.* Stem corymbose, with a solitary leaf. Leaves ovate-heart-shaped, wavy, with radiating teeth chiefly at the base."—Eng. Flora, iii. 359.

"*H. pulmonarium.* Stem somewhat corymbose, solid, slightly leafy. Leaves lanceolate, deeply and unequally toothed throughout; teeth pointing forward."—*Id.* 360.

"*H. maculatum.* Stem cymose, many-leaved, tubular. Leaves ovate-lanceolate, strongly toothed; teeth pointing forward."—*Id.* 362.

It will be evident on examination that the descriptions above quoted do present characteristics sufficiently distinct to justify the adoption of three species, and I will now see how far my plant will agree with those descriptions. On examination I find my plant to differ from the description of *H. murorum*, in the stem being only *one- or two-flowered* (Mr. Watson says it has from *one to three*); this cannot be

* The former part of Mr. Gibson's communication is merely a repetition of what Mr. Watson has written at pp. 801 and 841, to which we beg to refer the reader. *Ed.*

considered a corymbose stem: it also differs in having the teeth of its leaves pointing forward, and therefore cannot be said to have radiant teeth. The want of a corymbus and *lanceolate* leaves will serve to distinguish it from *H. pulmonarium*. Its *naked* and *solid* stem will serve to distinguish it from every form of *H. maculatum*. Many other characters might have been pointed out to distinguish the above plants, but as Mr. Watson only refers to Smith, I will seek no other authority and will now conclude with saying that I am much surprised to find that Mr. Watson, after he has paid so much attention to Botany, should consider the absence or presence of medulla in the stems of plants, to be of no value as a character whereby to distinguish them as species. It is to be regretted that such valuable characters are not duly appreciated; but it is an indisputable fact, that unless we submit to a careful investigation, the greatest errors may be committed. *Samuel Gibson; Hebden Bridge, February 10, 1844.*

457. *Enquiry respecting Phascum multicapsulare*, Smith. Permit me to enquire, through the medium of 'The Phytologist,' whether anything is known concerning this moss, which is in all probability distinct from every other described British species. It has usually been regarded as a variety of *P. crispum*, (see Hooker and Taylor's 'Muscologia Britannica' &c.); but it appears from the account given of it in Bridel's 'Bryologia Universa,' i. 48, that Dr. Mohr, having received specimens from Mr. Turner, saw reason to abandon such an opinion; and accordingly, in Weber and Mohr's Bot. Tasch. p. 477, it is separated from *Phascum crispum*, on the ground that it has the *leaves evidently serrulate*; and Smith (Flor. Brit. 1152) describes it as differing from *P. crispum* in having its perichæatial leaves *straight, and never crisped when dry*; also of a more dusky hue. The place of growth is stated to be in cart-ruts in Clapham-park wood, near Clapham-ford end, and other places near Bedford, (Rev. Dr. Abbott). It is, however, figured under the name of *Phascum crispum* in 'English Botany,' t. 618, and at that time Smith entertained no doubt of its being the true Hedwigan species so called. A subsequent change of opinion on the part of Smith, is a strong argument in favour of the moss being distinct; and it is hoped that some one residing in Bedfordshire will endeavour to serve the cause of science in instituting a search for this moss. The numerous capsules on each stem will serve to indicate the plant. — *W. Wilson; Warrington, February 20, 1844.*

458. *Note on the production of Shoots of Cytisus Laburnum and C. purpureus from grafts of C. Laburnum coccineum.* In Mr. Young's

nursery-ground at Milford, near Godalming, there are several trees of *Cytisus Laburnum coccineum*, similar to that in the Royal Botanic Garden at Edinburgh, of which specimens were exhibited at the meeting of the Botanical Society of Edinburgh, on the 8th of June, 1848 (Phytol. 653), in which, from the grafting of the French hybrid—the *C. Laburnum coccineum*, on the *C. Laburnum*, the result has been the production of shoots of three varieties,—*C. Laburnum coccineum*, *C. Laburnum* and *C. purpureus*. I observed these trees in blossom last year, when, as in the Edinburgh tree, the yellow and red flowers were predominant. Even in their present leafless condition they present a singular appearance: the cherry-tree-like branches of *C. Laburnum coccineum* being very distinct from those of *C. Laburnum*, which retain their decayed seed-vessels, while the pendulous tufts of *C. purpureus* appear, at a short distance, like bunches of mistletoe. Mr. Young states that it is about six years since he first noticed the tendency of the mule laburnum to reproduce the forms of the parent plants.—*Henry Bull; Godalming, Surrey, February 19, 1844.*

459. *Republication of Johnson's 'Itinera Botanica.'* We are pleased to observe that Mr. Pamplin is about to republish this interesting work by subscription. The text will be translated verbatim by Mr. A. Irvine.—*Ed.*

460. *Collections of Scottish Plants.* Mr. Wm. Gardiner has announced his intention of preparing, during the ensuing summer, a number of packages of plants, chiefly from the alpine district of Braemar. Subscribers' names received by Mr. Gardiner, Dundee.—*Ed.*

ART. CCIV.—*Proceedings of Societies.*

LINNEAN SOCIETY OF LONDON.

November 7, 1843.—R. Brown, Esq., V. P., in the chair.

Dr. Bromfield, F.L.S., presented a specimen of a species of *Calamintha* found by him in the Isle of Wight, and regarded as new, (see Phytol. 768).

Mr. Newman exhibited a specimen of *Trichomanes* lately found in the co. Kerry, and supposed to be distinct from *T. speciosum*.

Read, a letter from Joshua Clarke, Esq., of Saffron Waldon, accompanying specimens of *Barkhausia setosa* (*Dec.*), found in that neighbourhood, with a note on the characters and distribution of the species, by Mr. Kippist, Libr. L.S.

Read also the commencement of 'An Analysis of *Rhizanthæ*,' by Wm. Griffith, Esq., F.L.S.

November 21.—E. Forster, Esq., V.P., in the chair.

Read the conclusion of Mr. Griffith's 'Analysis of Rhizanthese,' and his 'Description of Sapria, a Himalayan genus related to Rafflesia.'

December 5.—E. Forster, Esq., V.P., in the chair.

Read, 'Observations on Cythineæ, and on the genus Thottea of Rotzböll,' in continuation of Mr. Griffith's memoirs on Root-parasites.

December 19.—E. Forster, Esq., V.P., in the chair.

Mr. J. T. Lay, Her Majesty's Consul at Canton, presented a box of specimens of the *Keih-seen-me*, a species of Alga related to Nostoc, and eaten as a delicacy among the Chinese.

Read, a paper 'On *Carex saxatilis* (L.), and an allied species,' by Francis Boott, M.D., F.L.S. &c.

The allied species was found in 1832, in Glen Phee, Clova, by the party accompanying Dr. Graham on his annual botanical excursion to the Highlands, and was considered a form of *C. saxatilis*, L.; but Dr. Boott's attention having been called to it by Mr. W. Wilson, he has been led to regard it as a distinct species, and has named it *C. Grahami*. The following characters are given:—

Carex Grahami. Spikes 4—5, cylindrical, ferruginous; barren spikes 2 (rarely 1), slender, acute; fertile spikes 2—3, rather remote, stout, obtuse, the lower ones pedunculated, without sheaths, somewhat nodding: stigmas 2: perigynium oblong-ovate, inflated, nerved, somewhat erect, ferruginous (rarely straw-coloured), pale at the base, twice the length of the glume, beak bifurcate; glumes ovate, acute, brown, white at the apex, with a pale nerve.

Carex saxatilis. Spikes 2—3 blackish purple; barren spike 1 (rarely 2), cylindrical, pedunculated; fertile spikes 1—2, rounded or ovate, the lower one more or less pedunculated, bracteated, without a sheath, erect: stigmas 2—3: perigynium somewhat globose or ovate, with a notched beak, stipitate, spreading, nerveless, blackish purple, paler at the base, longer than the glume; glumes ovate, rather obtuse, blackish purple, white at the apex, nerve concolorous. *C. saxatilis*, L. *Fl. Lapp.* 259 (1737). *C. pulla*, Good. in *Linn. Trans.* iii. t. 14 (1795). Hab. Alpine districts of Scotland, Norway, Lapland, Sweden, Iceland, and the Faroe Isles.

The author critically examines the original authorities which show the *C. pulla* of Goodenough to be identical with *C. saxatilis*, L.; he also points out the origin of the confusion of the latter with *C. rigida*, Good. The characters distinguishing *C. Grahami* and *C. saxatilis* are then more minutely examined, and the author adds that he should not doubt their specific distinctness, but for the observations of Drejer, who, in his 'Revisio critica Caricum Borealiæ,' under the name of *C. pulla*, *β. fusca*, describes specimens from Iceland and Greenland closely agreeing with *C. Grahami*, except that no mention is made of the nerves of the perigynium, and remarks that the Greenland specimens are so very variable that they would scarcely be thought to be-

long to the same species. In the absence of precise information on the subject, Dr. Boott is inclined to refer to Presl's *C. physocarpa* (a native of Nootka Sound), both the larger Greenland specimens, and others from the Rocky Mountains described by him as *C. saxatilis* in Hooker's 'Flora Boreali-Americana.' The author, while he repeats that both himself and Mr. Wilson consider *C. Grahami* entitled to rank as a species, yet leaves it to future observers to determine the value of the character given for it, and whether it is to be retained as distinct, referred back to *C. saxatilis* (L.), or transferred to *C. physocarpa* (Presl.)

Read also, 'An account of the Trees producing Myrrh and Frankincense, as found in those parts of the coast of the Red Sea and Indian Ocean whence those Gums were obtained in the first dawn of Commerce;' by Major W. C. Harris, late on an Embassy to the Court of Shoa, in southern Abyssinia.

BOTANICAL SOCIETY OF LONDON.

February 2, 1844.—A. Gerard, Esq., in the chair.

Various donations to the library and herbarium were announced, including 44 new species of mosses, collected at Swan River by Mr. James Drummond.

Read the commencement of a paper by Edwin Lees, Esq., F.L.S., being 'A Synoptical View of the British Fruticose Rubi, arranged in Groups, with explanatory remarks.' The groups into which Mr. Lees unites the species have been already reported (Phytol. 655). The list of species will shortly be published in a new Catalogue of British Plants, now in the press for the Botanical Society of London.

The following explanations, in the words of the author, will sufficiently show that this arrangement has not been founded upon any brief or superficial study of his subject.

"Having previously designated the general groups into which the British Fruticose Rubi are divisible, I now proceed to attempt the more difficult task of describing the species in each group, and tracing them in succession in a synoptical form. In doing this, as I must necessarily propose some alterations, it is advisable that the candid and enquiring botanist should be informed as to the principles I have kept in view.

"In the first place, then, I have desired to make no innovation but what seemed imperatively required for correct elucidation, and have therefore made every effort to profit by the labours of preceding emi-

nent botanists, who have particularly studied the Rubi, as Sir J. E. Smith, Drs. Weihe and Nees ab Essenbeck, Mr. Borrer and Professor Lindley. But secondly, I have observed with the eye of an original explorer, tracing every form that appeared to me different, without reference to the ideas of other botanists. And thirdly, having observed the same plants in a living state for several successive years, I have collated and revised my original observations, sketched every apparent species, and compared them again and again with the figures, descriptions and named specimens of botanists of authority. Thus I have been enabled in a great degree to understand the forms to which particular names have been assigned, and to test their propriety by my own experience. I trust, therefore, that I shall not be considered guilty of assumption when I may differ from others, being only anxious for the nearest approximation to correctness.

"It is unnecessary for me to go into the question as to what constitutes a species in this genus; for, as I have before hinted, it is not unlikely that the forms in every *group* may be really only varieties, sporting from a normal form and into each other. But if Botany be a science of discrimination, it is at any rate convenient to name every remarkable continuing form as a species or sub-species, since otherwise minor variations can scarcely be distinguished, or must be placed in the same rank with more important deviations of structure. Indeed Nees Von Essenbeck, one of the authors of the elaborate 'Rubi Germanici,' has well remarked in a letter to the Rev. Mr. Leighton, in the Shropshire Flora, — 'I am not of opinion that all the forms proposed by my friend Mr. Weihe *as species*, are to be considered as such, but in my opinion it is absolutely necessary to look for the greatest number of forms which present themselves in the genus, before attempting to judge of species and fixing their limits. I can scarcely tell which is most perplexing in the path of our science, whether, with Mr. Weihe, to distinguish as species every form of bramble that presents itself to our view, or, with Mr. Koch, to consider all as modifications of one only. In this case I do not doubt that these are matters purely of observation, and that the faithful observer of Nature will find that the truth really is between these two extremes.'" G.E.D.

Errata.—Page 880, line 31, for *cautecaulis* read *caulicola*: line 32, for *Hystericum* read *Hysterium*.

Page 889, line 4, for *reticulate* read *parallel veins*: line 5, for *parallel veins* read *reticulate*.

THE PHYTOLOGIST.

No. XXXV.

APRIL, MDCCCXLIV.

PRICE 1s.

ART. CCV. — *Notes on Botanical Classification.*

By EDWARD FORSTER, Esq., V.P.L.S., &c.

Woodford, March 13, 1844.

SIR,

On reading the 'Remarks on Botanical Classification,' by Mr. Thomas Edmonston, jun. (Phytol. 759), in which there is so much good sense and clear understanding, I felt inclined to express my gratification; but on reflection it appeared to me that his observations wanted no additional strength. The case is now altered by the Article 199, in No. 34, called a Reply, (Phytol. 885), which arouses an old botanist to stand forth in defence of one who has so well pointed out the use of a simple artificial scheme. It may not be amiss first to remark that a misunderstanding has long been prevalent with regard to the words artificial and natural, as applied to botanical systems; the original meaning was, that in one, the *evident affinity* is not so apparent as in the other; it surely cannot be denied that the *sexual* system of Linnæus is really as natural as those of Ray, Jussieu, DeCandolle &c., which are founded on other characters. I fear Linnæus himself was the author of the misnomer.

On looking carefully at the first paragraph in p. 886, I am well convinced that Mr. Edmonston and Dr. Ayres differ only in words, the latter using species in a sense not usual. He begins by entirely dissenting from Mr. Edmonston's assertion that "Nature creates species;"* then follows, "for it is easy to perceive that the term species is applied to an assemblage of individuals, which, from their great resemblance to each other and their capability of propagating their kind, are called species." A little further on we have, "I contend that Nature simply created individuals capable of propagating their kind. And if we trust the Mosaic account of the creation, we shall see reason to believe that plants as well as animals were individually created." This is all we want, — our term species meaning the progeny of the first-created individuals. Certainly, the capability of thus propagating their kind is a very strong presumptive proof that they are so. The passage

* A misquotation: the passage is, "Nature creates only species."

goes on, "It is evident that the term species applies to one of the primary inductions from a comparison of individuals; not that a species has any absolute existence, but is merely the conception or expression of the points of resemblance of a certain number of individuals bearing the greatest resemblance to each other. Another argument against Mr. Edmonston's view is the fact of the existence of varieties; a still lower induction from individuals." Whatever is meant by this scholastic induction, it would rather seem to contradict the writer's own words quoted above, but I am doubtful if I understand it. The fact of the existence of varieties is surely no argument against Mr. Edmonston's view.

Again, "The quotation from Dr. Lindley's *Key to Botany* is not sufficiently ample, Mr. Edmonston should have added the next paragraph." "What we call the characters of plants are merely the signs by which we judge of affinity, and all the groups into which plants are thrown, are in *one* sense artificial, inasmuch as Nature recognizes no such groups. Nevertheless, consisting in all cases of species very closely allied to each other, they are in another sense natural.' The addition of the last sentence very much alters our notion of Dr. Lindley's expression; for now he implies that Nature has not created species, orders, genera, or other groups as such." This quotation from Lindley surely very much confirms Mr. Edmonston's argument. It is quite clear that Lindley uses the word species exactly as I have endeavoured to show is the true meaning. If the passage be read with attention, it will be seen that he refers to groups of species, and by no means implies that Nature has *not* created species, which word is introduced by Dr. Ayres in his inference; Lindley's meaning being that the arrangement of species into genera is the work of man, founded on natural affinities.

It might perhaps have been rather more accurate if Mr. Edmonston had said, Nature created species, instead of using the present tense; by Nature no man in his senses can suppose that he means any other than Divine power.

Having, I trust, shown that Mr. Edmonston and Dr. Ayres, both of whom are unknown to me, except by their writings in 'The Phytologist' do not differ except in the use of words, I am led to lament, that *fashionable* botanists of the present day are in the constant habit of using words in a new sense. We can scarcely meet one, in whose conversation the word *form* is not introduced by hook or by crook, for species, genus, group or anything else. Our language does not want it, but for variety it is not improper. I am ready to allow that were it not for the indecent want of reverence in attributing to Na-

ture, the working by *carpenter's rule*, the term normal form is quite as melodious as *type of the species* hitherto adopted for the usual and regular habit or *form* of a plant from which the specific distinctive characters ought to be taken; and is equally inaccurate. Normal as applied by legislators to *model* prisons and schools, has Latin authority; in the case of plants model will hardly do.

I hope the above explanation of the word species may tend to check young men from talking of "making species," or boasting of "exalting varieties to the rank of species," neither of which is in the power of mortal man. I will now conclude with saying, far be it from the most ardent admirers of the great Linnæus, or the zealous defenders of his sexual, commonly called artificial system, to disparage any others, founded on analogy; much less to discourage the beautiful study of Physiology, without the knowledge of which no man can become a thoroughly scientific botanist.

I am, Sir.

Yours sincerely,

EDWARD FORSTER.

To the Editor of 'The Phytologist.'

ART. CCVII. — *List of a few of the Botanical Rarities collected in Scotland in 1843.* By WILLIAM GARDINER, Esq.

LYCHNIS viscaria, L. . . . Gathered in a new station, in July, namely, wooded banks of the Ericht near Craighall, about two miles above Blairgowrie, Perthshire. Only two or three specimens in flower.

Lychnis alpina, L. This very interesting and rare species I collected on the summit of Culrannoch, one of the Clova mountains, about 3200 feet high, in the midst of a terrific hail-storm in July. It grew on wet stony ground, associated with *Armeria maritima*, *β. alpina*.

Linnaea borealis, Gronov. Plentiful among the mossy rocks at the base of Craig Maid, in Glen Dole, Clova, July 28, bearing abundantly its graceful snowy and rose-tinted blossoms, loading the summer air with their rich perfume.

Sonchus alpinus, L. This was culled from two stations in Glen Dole in July and August, carefully leaving the roots, and observed in several other places about the rocks of Craig Maid but inaccessible.

Erigeron alpinus, L. In Caulochen and in Glen Dole, high on the rocks, but in small quantity.

Moneses grandiflora, Salisb. Moist shady woods, Scone, Perthshire, flowering in June, but very deficient in size this season.

Pyrola rotundifolia, L. On the rocks of Craig Maid, Glen Dole, at a good elevation, associated with *P. secunda*, but neither of them in plenty.

Asperugo procumbens, L. Found in June on a bank near Aucmithie, coast of Forfarshire.

Veronica alpina, L. This was found abundantly in Caulochenglen in July, and more sparingly in Glen Dole, both in flower and fruit. It loves to grow about the sides of rills, and on the moist rocky banks of old watercourses.

Veronica saxatilis, L. This brilliant-flowered species adorned the rocks of Caulochen in great profusion, and occurred also on the rocks in Glen Dole, and in the *corrie* of Ben Red.

Salix ambigua, Ehrh., *S. arenaria*, L., *S. hirta*, Sm., *S. nigricans*, Sm., *S. Forsteriana*, Sm., *S. Davalliana*, Sm., and *S. lanata*, L., were found in Glen Dole and Glen Clova; *S. petræa*, And., *S. Myrsinites*, L., *S. procumbens*, Forbes, and *S. lanata*, L., in Caulochen.

Scheuchzeria palustris, L. In a marsh near Methven, Perthshire.

Potamogeton zosteraefolius, Schum. Rather plentiful in Rescobie-lake, Forfarshire, bearing flower-spikes in August.

Juncus Balticus, Willd. Very abundant on the sands of Barrie.

Alopecurus alpinus, Sm. This occurred in various localities about Clova, but in greatest quantity and in finest condition on the wet rocks about the waterfalls of Craig Wharral, above the loch.

Phleum alpinum, L. Was gathered on the moist grassy banks of the Feula-burn, above the falls; upon the bank of the Glashie-burn, which runs into the glen of Caness; and very fine about a small waterfall not far from Loch Brandy, called "the *wash* of the *corrie* of Clova."

Carex aquatilis, Wahl.? Abundant on the moist banks of Feula-burn, Clova, and near the head of Caness, rarely attaining the height of a foot, but growing on the margin of the Esk in Glen Clova, to more than double that size.

Carex rariflora, Sm. For this rare species I discovered a new station in the Clova district, namely a bog at the head of Caness, where it occurred in fully greater plenty than in the bog at the head of Glen Dole.

Equisetum variegatum, Schleich. Sands of Barrie, in fruit from April to October.

Splachnum vasculosum, Hedw. On the marshy banks of Feula-burn above, the falls, this moss occurred in fine fructification in July; and in August I detected it in a similar spot on the banks of Loch

Brandy stream, also bearing capsules, rendered conspicuous by their large dark brown apophyses, nestling among the broad and ample foliage.

Weissia nigrita, Hedw. On the sands of Barrie, bearing fruit in September. I also found it with capsules in January, 1844, as well as *Didymodon inclinatus*, Sm., with which it grows associated.

Grimmia Doniana, Sm. Growing in small tufts, principally in the hollows of rocks and stones, on the Sidlaw-hills, near their summits; plentifully in fruit in April.

Didymodon Bruntoni, Arn. Rocks on the Sidlaw-hills, and about the Reeky Linn, in April and May.

Dicranum polycarpon, Ehrh. Plentiful on rocks in Glen Dole and on Carlowrie mountain, Clova.

Dicranum fulvellum, Sm. On moist rocks in Glen Dole, but rare.

Orthotrichum Drummondii, Hedw. Abundant on the few scattered old trees in Glen Dole.

Bryum trichodes, L. Among the rocks of Caulochen, and more abundantly in moist places on the sands of Barrie. Capsules mature in the latter place in June, in the former in July.

Bartramia gracilis, Flörke. This was gathered in Glen Dole, Caulochen, and Craighall, in July, and bearing profusion of capsules, although these are esteemed rare.

Buxbaumia aphylla, L. On the northern declivity of one of the Sidlaw-hills, where I have gathered it for several successive seasons. It grows in small earthy hollows among the heath, probably where snow has lain late in the spring.

Hypnum molle, Dicks. In Loch Brandy stream, and also in a rivulet in Glen Dole.

Hypnum Crista-castrensis, L. This grows abundantly among the loose rocks at the base of Craig Maid, Glen Dole, a short distance below the falls of the White-water, but only a specimen or two were found with mature capsules, although there appeared to be plenty in a young state.

Jungermannia Taylori, Hook. Plentiful on wet rocks in Glen Dole, along with *J. julacea*.

Jungermannia setiformis, Ehrh. This fine species I collected in Glen Dole, Caulochen, Ben Red &c., growing upon the rocks in broad tufts or cushions.

Cetraria juniperina, Ach. A single specimen found in Deerhill wood, about eight miles north from Dundee, in April.

Cetraria sepincola, Ach. This is abundant in the same wood, in-

vesting trunks and branches of fir-trees, along with *C. glauca*, but although apothecia are frequent on the latter, only one specimen of the former has as yet been found possessed of them. *C. Islandica* is scattered plentifully over all the Clova mountains, and occurs sparingly on the Sidlaw-hills. *C. nivalis*, in the Clova district, is confined to the summit of the Bassies.

Usnea barbata, Ach. Several specimens of this were found with apothecia in the Deerhill wood.

Alectoria jubata, Ach. A specimen or two of this were gathered in the same wood in April, with apothecia, which are different from what has been previously figured as such, and which Sir W. J. Hooker and Mr. Borrer pronounce to be the *true fructification*. As this lichen is very abundant in Deerhill wood, I have good hopes of being able to supply each subscriber to my botanical distribution of 1844, with a fructified specimen.

WILLIAM GARDINER.

Dundee, February 12, 1844.

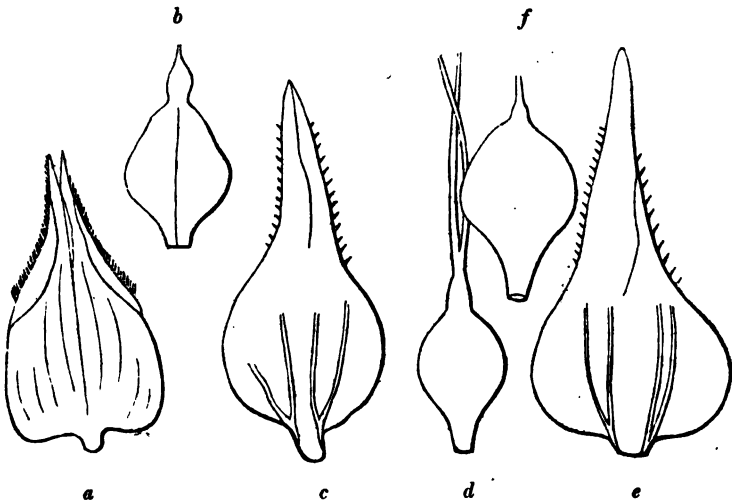
ART. CCVII. — *Notes on Carex teretiuscula, C. paradoxa, C. paniculata, and Mr. Gibson's C. pseudo-paradoxa.* By GEORGE LUXFORD, A.L.S., &c.

(Concluded from p. 897).

The three recognized species of *Carex*, the names of which stand at the head of these notes, fully exemplify the absolute necessity of studying numerous specimens of plants, from different localities, before we can arrive at anything like a correct estimate of the extent of their variations in habit, or discover the permanent character peculiar to the species to which they respectively belong.* These three species, together with *Carex vulpina* and Mr. Gibson's *C. pseudo-paradoxa*, form a small but natural group of British Carices, which agree generally in their compound inflorescence, but more particularly in their perigynia being cordate at the base and stipitate, with the style more or less enlarged in the lower part. The inflorescence of *Carex*

* By the word *permanent*, as used above, must not be understood an *unvarying* adherence to size, form, colour or proportions, but such a degree of general resemblance among themselves, often more readily seen than described, as will enable the student to refer the objects of his investigation to a certain determinate standard, usually denominated the normal form or type of the species. The limits of possible variation from this standard are frequently very wide. A reference to our domestic animals, and our cultivated plants and fruits, will explain my meaning.

vulpina is tolerably constant; but in *C. paniculata* it is so exceedingly variable, that the only part on which we can depend as affording a permanent specific character is the fruit.* The fruit indeed is now generally referred to by botanists in their characters and descriptions of the numerous species of *Carex*, but its value will be peculiarly apparent in a plant, the habit of which is so liable to variation as that of *C. paniculata*. No dependance can be placed on the inflorescence, for in my specimens this varies from a nearly simple elongated spike, through different gradations, up to a regular panicle with branches between three and four inches long — a variation pointed out by Mr. Babington and other botanists. A good character would seem to be afforded by the tendency of the root to form large tufts; but as this appears also to be the case with the root of the new *Carex paradoxa*, as well as, although in a less degree, with that of *C. teretiuscula*; we are obliged, especially for home study, to have recourse to the fruit for a character, and a most satisfactory one is afforded by it. Figures *a.* and *b.* are copied from Leighton's 'Flora of Shropshire,' and well

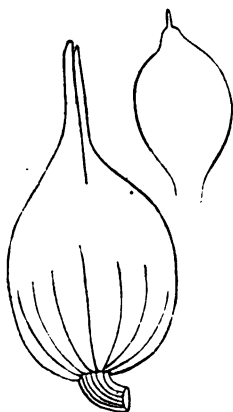


a, b. Perigynium and nut of *Carex paniculata*. *c, d.* The same parts of *C. teretiuscula*. *e, f.* The same of *C. pseudo-paradoxa*, *Gibbs*.

express the usual form of the perigynium and nut of *Carex paniculata*: the former with its bidentate beak and somewhat serrated densely fringed wings; and the latter with its ovate outline and the enlarged

* It may perhaps prevent misunderstanding, if I here repeat that I use the term *fruit* for the perigynium and included nut.

base of its style. The following is Mr. Moore's description of the fruit of this species, as contrasted with that of *C. paradoxa*, in the 'London Journal of Botany' for March, 1843. "Fruit *plano-convex*, between deltoid and triangular, with a broad serrated margin extending from the middle to the bidentate beak, broad and subcordate at the base, stipitate, striated on both surfaces; striæ scarcely extending down the slender stipitate point of attachment."



Perigynium and nut of *C. paradoxa*.

The above remarks on the variable nature of the inflorescence of *Carex paniculata*, are equally applicable to that of *C. paradoxa*. The specimens kindly sent me by Mr. Spruce are truly paniced, the branches of the panicle varying in length from a quarter of an inch to about an inch and a half. A specimen from Westmeath, collected by Mr. D. Moore, and kindly forwarded by Mr. W. Wilson, has the branches of the panicle very short, with its spikelets densely aggregated; and in other specimens from the Irish locality, also from Mr. D. Moore, in the possession of the Botanical Society of London, the panicle is reduced to a compound spike, with the spikelets sessile upon the common axis.

The panicle of this species, when in fruit, has a peculiarly *neat* appearance, reminding one of that of *Juncus cœnosus*; in its stem and foliage it resembles *Carex teretiuscula*. Being intermediate between *C. paniculata* and *C. teretiuscula*, as mentioned by Sir W. J. Hooker, and nearly allied to both species, it is desirable to find some permanent character whereby it may be distinguished from them; this character is here also admirably furnished by the fruit, which is perfectly identical in all the specimens above mentioned, agreeing, except in one particular, with Mr. Moore's description quoted below from the 'London Journal of Botany.' "Fruit ovate-subrotund, *gibbous on the inner face*, with a long slender beak, slightly cloven, and edged with a narrow serrulated margin,* base gradually† lengthened out into a

* The serrulated margin of the beak could not be shown in the figure, from the position of the perigynium, which is represented as lying on its side.

† The base of the perigynium can scarcely be said to be *gradually* lengthened out into the stipes. In this respect, as mentioned by Mr. Wilson, Schkuhr's figure is unsatisfactory, since it represents the base of the perigynium as tapering down into the stipes, instead of cordate, as it really is.

strong stipitate point of attachment, which is a continuation of the convex surface, with strong nerves all round, which extend down the stipe." The figure of the perigynium given above, is a profile view from a sketch by Mr. Wilson. The sketch was made from a fruit of Mr. Moore's Irish plant in the possession of Mr. Wilson.

The difference in the outline of the nuts of the two species is sufficiently shown by the figures; there is considerable resemblance between the perigynia of the two when viewed in front, the most obvious difference consisting in the broadly winged and cloven beak of the one and the serrulated emarginate beak of the other. When however the perigynia are viewed in profile, a most striking dissimilarity is observable: in *C. paradoxa* the lower part being inflated with the inner face gibbous, while in *C. paniculata* the inner face is nearly flat. It will be seen that the nut scarcely differs in outline from that of *C. teretiuscula*. For an account of the discovery of this beautiful *Carex* in Yorkshire, and a notice of its mode of growth in that locality, I beg to refer to Mr. Spruce's note, (Phytol. 842).

Seeing then that these two species are so subject to variation in the character of their inflorescence, we surely cannot feel surprized if we find that their natural ally, *C. teretiuscula*, is also variable in this respect, as indeed it is, although in a less degree. Some specimens now before me have their spikelets densely aggregated into a short roundish head; in others the compound spike is more or less elongated, even to above an inch in length: but amid all these variations in the inflorescence, this species is well distinguished from its ally, *C. paniculata*, both by the fruit and the form of the stem, which, in the latter, has three acute angles with the interstices flat, while the angles of the stem in *C. teretiuscula* are obtuse, with a projecting line in the centre of two of the sides: thus a transverse section of the one presents an acutely triangular outline, while in the other the outline is roundish. In the form of the stem and general habit *C. paradoxa* bears a considerable resemblance to *C. teretiuscula*, but the two are strikingly distinguished by the very different forms of their fruit. And here perhaps it may not be out of place to mention that while they retain their general specific characters, I have found both the perigynium and nut of *C. teretiuscula* to be subject to greater variations of form and outline than those of either of the two species named above. These variations I am inclined to think may be attributed to the fruit being examined in different stages of maturity. The nut, in what is generally considered its normal form, has a turbinate outline, as represented in Mr. Leighton's figure; but I have as often found it to

correspond with Mr. Wilson's figure (*d*, p. 919), and even with greater breadth in proportion to its length than that figure exhibits. There is, however, one part in which I have never observed any variation; and I have taken great pains to verify my observations on this point, because they are at variance with the figure given by Mr. Leighton, and the descriptions of most botanists; I allude to the enlarged base of the style, which is quite as constant, though not so conspicuous, in this species as in either *C. vulpina* or *C. paniculata*; but there is no constriction in the lower part of the enlargement, as there is in the two species last mentioned. In stating that the base of the style of *C. teretiuscula* is always enlarged, I am happy to be supported by the valuable testimony of Mr. Wilson, in whose figure *d* is shown the style with its enlarged base. Schkuhr also has accurately figured the nut of this species (*l*, in tab. D, 19), both in its outline and the swollen base of the style.

The figure of the perigynium of *C. teretiuscula* in Leighton's 'Flora of Shropshire' represents that part more cordate at the base than Mr. Wilson's sketch, (*c*. Phytol. 919). In this respect also I have observed considerable variations from what may be looked upon as the normal form, which variations, as I have before stated, I am inclined to attribute to a difference in the state of maturity. The number of ribs on the outer side is also variable in a certain degree. The beak is scarcely notched, never deeply cloven, and its marginal wings are narrow, green and serrulate.

With respect to the root of this species there appears to be a slight diversity of opinion among botanists. For while Smith and Leighton agree in calling the root "slightly creeping," and the former author says it is "not densely tufted," and the latter that it is "slightly creeping into scattered simple not dense tufts,"—Mr. Babington describes it as "forming scattered simple tufts, not truly creeping." From this it is, I think, evident that the root, like the inflorescence, is liable to be modified by local and other circumstances; and it appears to me not at all wonderful that these circumstances should also occasionally produce such changes in the habit and general appearance of this species, as well as of others belonging to the same group, as would cause considerable perplexity to a botanist, and lead him to conclude that he had found something new on seeing the plant for the first time in its modified form. Such circumstances, I doubt not, have operated on the plant named *Carex pseudo-paradoxa* by Mr. Gibson, and caused the deviations from what I believe to be the normal form, that have led that botanist to describe the plant as a new species. The

peculiarities in the locality and manner of growth of this plant have already been explained by Dr. Wood, (*Phytol.* 809); and it appears from the evidence before me, that the root has been acted on in that locality more than any other part of the plant. For in my numerous specimens from that spot I find the inflorescence undergoing precisely the same changes as I have before stated to be common in the true *C. teretiuscula*. The perigynium is equally variable in its form and markings with that of *C. teretiuscula*, — the number of ribs varying from four to six or seven, and the breadth at the base being more or less great in proportion to its length; but the perigynia of the two agree precisely in their general outline, their cordate base, and their scarcely notched beak with its serrulated margins. Fig. *e* (p. 919) represents a perigynium of the disputed plant; it is the broadest form I have met with, but there are regular gradations from it to the narrow form figured at *c*, and the same form I have not unfrequently met with in the normal state of the species. The nut, too (*f*), so far as I can see, is perfectly identical in the two plants. There are the same variations in outline, and, what is of perhaps greater importance, the base of the style in the two plants is enlarged in precisely the same manner. Figs. *d* and *f* show almost the extreme forms, and these, like the perigynia, I find to be connected by very regular grades.

In addition to the above characters I may remark that the culms, foliage, bracts and other parts, together with the general habit of the two plants, are all strongly indicative of the closest affinity, nay, even of specific identity.

In the 'London Catalogue of British Plants,' by the Botanical Society, published since the above notes were written, the disputed *Carex* stands as var. *b. pseudo-paradoxa*, under *C. teretiuscula*. This is doubtless its true place, if allowed to retain an existence separate from the normal form: for as a distinct species it certainly appears to have no claim to a station in our Flora.

Before I conclude I may perhaps be allowed to point out the very slight resemblance between the fruit of this plant and that of *Carex paniculata* (*Phytol.* 778, &c.) The comparison was certainly rather unfortunate, except so far as relates to the sectional likeness between the two; for a comparison of fig. *f* with *b*, will at once show a marvellous difference in the outline of the nut of *Carex paniculata* and that of the disputed plant, a difference, indeed, as great as that existing between the two perigynia represented by *a* and *c*. The discrepancies are so striking, that, coupled as they are with other marks of distinction equally if not still more obvious, we cannot but wonder that

the one should be said to have the fruit as in the other, as much as that the normal form of *C. teretiuscula* should ever have been considered a mere variety of the truly distinct *C. paniculata*.

In conclusion I beg to return my best thanks to Mr. Wilson for the loan of his sketches and dissections; as well as to those gentlemen who have kindly furnished me with the numerous and beautiful specimens which have been used in my investigations, and without which my researches could not have been carried out. As my only object in undertaking the task was the hope of eliciting truth, I shall be happy to see in the pages of 'The Phytologist' a record of the results of similar researches prosecuted by other enquirers, and that, too, whether such results may tend to establish or overthrow my present conviction that the new plant is merely a variety of the species usually known as *C. teretiuscula*, *Good.*

GEO. LUXFORD.

2, Ebenezer Row, Kennington Lane,
February, 1844.

ART. CCVIII.—*Note on the supposed identity of Carex fulva*, Goodenough, with *C. speirostachya*, Wahlenberg.* By FRANCIS BOOTT, Esq., M.D., F.L.S., &c.

I HAVE been looking at *Carex fulva* of Goodenough, with a view to the opinions of Sir James Smith and the continental botanists, who make two species out of the plant originally described by Goodenough in the second volume of the Linnean Transactions, 1792: viz. —

1. *C. fulva*, *Good.*, and

2. *C. speirostachya*, *Wahl.*

C. Hornschuchiana, *Hoppe*, &c.

C. Hosteana, *Dec.* &c.

Host, Wahlenberg, Swartz, Smith, Hoppe, Reichenbach, Koch, Sprengel, Degland, Decandolle, Brebisson, Boreau, Desporte, Tuckerman, Don, Macreight, admit two species.

Goodenough, Schkuhr, Willdenow, Gaudin and Mutel notice only *C. fulva*.

Cosson and Germain, Delastre, and Sir W. J. Hooker make the one a variety of the other.

Kunth quotes Hoppe's plant, but was not acquainted with it.

* Communicated by Edw. Forster, Esq., V.P.L.S., and published with Dr. Boott's permission. We trust our readers will endeavour to aid Dr. Boott in this enquiry by collecting and transmitting to him any specimens they may meet with.—*Ed.*

1. *C. fulva*, Good. Linn. Trans. ii. 177, t. 20, f. 6: 1792. Wahl. Act. Holm.: 1803. Smith, Fl. Brit. iii. 991: 1804. Willd. Sp. Pl. iv. 270: 1805. Wahl. Fl. Suec.: 1806. Schkuhr, Riedgr. T. 67, *figuræ 2 dext.* Hoppe, Car. Ger. t. 41. Smith, Eng. Fl. iv. 107: 1828. Reichenbach, Fl. Ger. ex. i. 65: 1830. Mutel, Fl. Dauphiné: 1830. Sprengel, Syst. Veg. iii. 823: 1826. Brebisson, Fl. Normandie: 1836. Koch, Syn. Fl. Germ. 765: 1837. Kunth, Cyp. 449. Desportes, Fl. de la Sarthe &c. 1838. Boreau, Fl. du Centre de la France: 1840. Macreight, Man. Br. Bot.
Syn. — *C. distans*, Host. i. t. 77; *fide Reich.* *C. trigona*, Allioni, t. 89, fig. 4; *fide Cosson &c.* *C. xanthocarpa*, Degland, apud Loisel.; *fide Cosson &c.* *C. Hornschuchiana*, *β. xanthocarpa*, Cosson et Germain, Obs. sur quelq. Pl. de Paris, p. 20; 1840. Delastre, Fl. du Dep. de la Vienne: 1842.
2. *C. speirostachya*, Wahl. Act. Holm. 1803, (sub *C. binervi*). Swartz in Herb. Smith. Smith, Eng. Fl. iv. 98: 1828. Tuckerman, Enum. Meth. Car. 13: 1843. Eng. Bot. Don, t. Macreight, Man. Br. Bot.
Syn. — *C. binervis*, Wahl. Act. Holm. 1803: Fl. Suec. 1826: (*non Smith*). Swartz, Herb. Winch. (*non Sm.*) *C. distans*, Fl. Dan. t. 1049; *fide Smith, Cosson (negat Reich.) C. Hosteana*, Dec. Cat., Kunth, Spreng. Reich. (*fide Hoppe, MS.*) *C. fulva*, Host. iv. t. 65, *fide Hoppe*. Dec. *fide Boreau*. Schk. Riedgr. T. 67, *fig. sinistr.* Duby, Bot. Gall. 495, *fide Cosson &c.* *C. fulva*, *β. Hook.* Br. Fl. 429: 1842. *C. Hornschuchiana*, Hoppe, Fl. 1824: Car. Ger. t. 40. Reich.; Koch; Brebisson; Boreau; Desportes; Delastre; Cosson et Germain; *omn. loc. cit.*
β. flavesens, Desportes, loc. cit. Fruct? squamisque flavescentibus; v. s. Herb. Winch e cl. Swartz.

Wahlenberg's name of *C. speirostachya* has the priority over that of Decandolle and Hoppe. A Swedish specimen so named by Swartz is in Smith's herbarium, and it was adopted in the 'English Flora.' Wahlenberg, in the 'Act. Holm.' and the 'Flora Suecica,' mistook the plant for *C. binervis*, *Smith*, and a Swedish specimen from Swartz so named is in Mr. Winch's herbarium.

The question is, whether the two plants are to be considered as species or varieties. It will be seen by the authorities quoted, that by far the most of them make the two specifically distinct. Cosson and Germain, from the circumstance of *C. Hornschuchiana* being the most common form, take that as the type, and reduce the *C. fulva*, *Good.*, to the var. *β.*, and they are followed by Delastre.

I do not find any British specimens of *C. fulva* in Smith's herbarium. On the sheet holding his specimens marked "*C. fulva*," there are three from Sweden, from Swartz, which answer to the description and figure of Goodenough; and with these are four from "*Prof. Beattie, Aberdeen, 1799*,"—and three others from "*Mackay, moist moorish ground, Scotland, 1796*," all of which I think are clearly referrible to *C. speirostachya*, having the mouth of the perigynium

deeply cleft and membranous at the margin, one of the chief characters which Smith insists upon for that species, but which Hoppe neither expresses in his figure nor notices in his description, and it is equally passed over by Koch and Reichenbach, and indeed by all the authorities; though Wahlenberg, as early as 1803, said "*ore bilobo hyalino*."

The essential difference of *C. speirostachya* is a stoloniferous root, a more slender smooth culm, narrower and shorter leaves and bracts (the last never reaching to the male spike), female spikes often three, the lower one subcylindrical (and sometimes compound), perigynium greenish, with a narrower, often smooth, cylindrical rostrum, the orifice of which is two-lobed, and membranous at the margins, the scales dark brown.

C. fulva has a caespitose root, grows in denser tufts, so as, Hoppe says, to be easily distinguished at a distance, the leaves of a bright green and with the bracts broader and longer (the last reaching to the male spike), the female spikes commonly two and ovate; the culm stouter, with three acute rough angles; perigynium yellowish with a broader conical rougher beak, which is bifid at the orifice, the scales of a cinnamon colour.

It would not be difficult to select specimens of each, having more or less of these characters well marked, but I think there are intermediate forms which it would be embarrassing to determine upon. Cosson and Germain deny that the root of *C. Hornschuchiana* is stoloniferous. Smith describes the root of *C. fulva* and of *C. speirostachya* as creeping. The roughness and smoothness of the culms vary. The orifice of the perigynium in the specimens of *C. fulva* of Swartz from Sweden, certainly is slightly membranous at the margin, and this character perhaps more or less depends on age. The colour of the perigynium in Swiss specimens of *C. speirostachya* from Davall, in Smith's herbarium, is yellowish, and Desportes has a variety, *β. flavescens*, with "yellowish perigynium and scales," an example of which I observe in Winch's herbarium from Swartz, sent as *C. speirostachya*.

I suspect the stouter and rougher culm, the broader and longer bracts and the rougher rostrum of *C. fulva*, would be found, in a large suite of specimens, to be unsatisfactory characters. I find in *C. speirostachya* the number of female spikes to vary from one to three, and in Davall's Swiss specimens, in one of those from Swartz from Sweden in Smith's herbarium, and in one from Germany from Baron Römer in my own herbarium, they are from five to six, the upper ones crowd-

ed near the male spike; while some are barren at the base and others at top.

C. speirostachya would seem to be more common in this country than *C. fulva*. The only habitats for the last that I know of, are *Canton, near Shrewsbury*, quoted by Goodenough. *Kent*, sent to me by Mr. Peete; and the *Northern Mountains of Ireland*, found by Macreight and given to Mr. Forster. I cannot satisfactorily quote other places. *C. speirostachya* I have from Scotland, Wales, Yorkshire and Somersetshire. I shall endeavour to interest British botanists in the subject, to fix the localities of the two plants, and to collect specimens with the *roots and mature fruit*, that the question may be more satisfactorily settled as to specific difference between them.

Mr. Babington, if I mistake not, leaves the question of specific difference undetermined: his book is not by me. F. BOOTT.

Gower Street, March 23, 1843.

[Mr. Babington includes *Carex speirostachya* under *C. fulva*: it may not be amiss to give here his characters.—*Ed.*]

“*C. fulva* (Good.); fertile spikes oblong-oval distant with exserted stalks, *bracts* foliaceous with *elongated sheaths*, glumes acute not mucronate, fr. ovate triquetrous ribbed smooth with a *straight rough-edged bifid beak*, *nut* obovate trigonous nearly smooth, *st. acutely triangular rough-edged*.—*E. B.* 1295.—*St.* about a foot high. *Barren spike spindle-shaped, acute*: glumes obtuse. Lowest bract frequently, but not always, reaching up to the barren spike. Root sometimes creeping.—*β. hornschurchiana*; fertile spikes oblong on longer stalks more distant, fr. more inflated and more strongly ribbed, *st. bluntly triangular smooth* except sometimes near the top, lowest bract longer than its own spike. *C. speirostachya* Sm. *E. B. S.* 2770. *C. hornschurchiana* H. b. 40., *Koch, Kunth*, &c. Probably a distinct species. — Boggy places. *β.* Peaty bogs chiefly on mountains. P. VI.”—*Man. Brit. Bot.* 343.

ART. CCIX. — Notice of ‘*The London Journal of Botany*,’ No. 27, March, 1844. By SIR W. J. HOOKER, K.H., LL.D., F.R.A. and L.S., Vice-President of the Linnean Society, and Director of the Royal Botanical Gardens of Kew. London: H. Baillière, 219, Regent Street.

IN the present number of this Journal there is much interesting matter under the head of “Botanical Information;” but as this for the most part consists of notices of new works on Botany, we can do little more than give a sort of running summary of the article.

In Mr. Fielding’s ‘*Sertum Plantarum*’ a work similar to Hooker’s ‘*Icones Plantarum*’ in its plan, but containing different subjects, will

be given lithographic figures of "entirely new or very little known plants" contained in the author's herbarium. He will be assisted in the work by Mr. Gardner, Superintendent of the Royal Botanic Gardens, Calcutta. The first fasciculus is published.

Another work, similar in character, is the '*Sertum Exoticum*' of Miguel, author of '*Observationes de Piperaceis et Melastomaceis*.'

The reprint, and translation, of Johnson's '*Iter Plantarum*,' has already been announced in our pages (Phytol. 908). The original of this work is exceedingly rare, the copy in the Banksian library now in the British Museum appearing to be the only one in existence. The new edition will be so printed that the English translation will occupy the page opposite the Latin text. The tract contains a journal of probably the earliest botanical excursion undertaken by the Apothecaries' Company. The following localities, among others, were visited by the author: — Erith, Dartford, Gravesend, Rochester, Sheppey, Faversham, Canterbury, Margate, Sandwich and Deal, in Kent: and in Middlesex, Kentish-town, Highgate and Hampstead, including Hampstead-heath and Caen-wood. By way of comparison of the present with the former botanical state of this district, Mr. Irving's List of Hampstead-heath Plants will be appended: facsimiles of the curious illustrations will also be given.

The eighth volume of DeCandolle's '*Prodromus Syst. Nat. Regni Vegetabilis*' was announced for last November, but had not been received when this No. of the Journal went to press. This great work has been continued by the son of the lamented author, and the assistance of some of the most eminent botanists of the day has been secured. The eighth volume includes the following families: — Lenticularinæ, Primulacæ, Myrsinæ, Ægiceracæ, Theophrastæ, Sapotacæ, Ebenacæ, Styracæ, Oleacæ, Jasmineæ, Apocynæ, and Asclepiadæ.

In Walper's '*Repertorium Botanices Systematicæ*' the arrangement of Decandolle's *Prodromus* has been followed, and it may be considered a Supplement to that work. The second volume concludes with the *Monotropeæ*.

Three supplementary numbers to Endlicher's '*Genera Plantarum*' have appeared; they contain new genera, as well as corrections of those previously published: the third number includes an arrangement of the Algæ, with their generic characters, a catalogue of species and a list of algological writers.

Schnizlein's '*Iconographia Familiarum Naturalium Regni Vegetabilis*' may be considered as supplying the place of Endlicher's '*Ico-*

‘*Monographia Generum Plantarum*,’ which was discontinued at the end of the first volume. Two parts are out : “the cryptogamic plates are very beautiful.”

Of Jaubert and Spach’s ‘*Illustrationes Plantarum Orientalium*’ eight livraisons are published.

Lindenberg’s ‘*Monographia Hepaticarum Generis Plagiochilæ*’ is a work illustrative of a group of *Jungermannia* having for its type our *J. asplenoides*. The hair-splitting system seems to have been carried to a great length ; for the Editor observes that “the slightest change in the form of the leaf, the presence or absence or size of a tooth, direction of the foliage and of the branches, the presence or absence of surculi, &c. &c., all and each are considered tokens of specific distinction, without taking into account the influence of soil, exposure and climate ;” and by these means the number of species of *Plagiochila* is increased to ninety-six ! The work is however spoken of in terms of praise for the beauty of its figures and the manner in which the characters and descriptions are drawn up.

The first volume of Grisebach’s ‘*Spicilegium Floræ Rumelicæ et Bithynicæ*’ is spoken of as “a most valuable addition to our knowledge of Eastern Botany.” A letter from the author explains the plan and object of the work.

The first volume of Ledebour’s ‘*Flora Rossica*’ is out and extends to the end of the *Leguminosæ*.

A notice is given of the plates to the botanical part of the antarctic expedition of the *Astrolabe* and the *Zélée*, in 1837—40, under Admiral d’Urville. They are highly spoken of.

Künze’s ‘*Farnkräuter*’ is a supplement to Schkuhr’s admirable work bearing the same title. Six fasciculi are published, and contain sixty coloured plates of new Ferns, or such as were not figured by Schkuhr. Künze’s ‘*Riedgräser*’ is in like manner a supplement to Schkuhr’s work on the *Carices*. Three parts contain thirty plates, with specific characters and descriptions.

Mr. Bateman’s ‘*Orchidaceæ of Guatemala and Mexico*,’ and Dr. Lindley’s ‘*Sertum Orchidaceum*,’ are deservedly spoken of in terms of high commendation.

The first No. of Mr. Bentham’s ‘*Botany of the Voyage of H. M. S. Sulphur*,’ has just appeared : it contains ten plates of new species, from drawings on stone by Miss Drake. It “extends as far as *Paronychiaceæ* of the Californian plants ;” and six quarterly parts will probably complete the *Botany*.

Under the notice of the first part of Sir W. J. Hooker’s ‘*Species*

Filicum,' appear the following remarks on the value of the *venation* in Ferns, which will be interesting to our readers.

"The introduction of the *venation* into our systematic characters, by no one insisted on with more force and truth than by Mr. Brown, is of the utmost importance in systematic arrangement, and constitutes a new era in the study of this family of plants; but we are not thence to infer that the slightest variation in the direction, or union, or some other circumstance in the veins, is therefore to constitute a mark of generic distinction. The generic importance of the venation is indeed a matter of great difficulty, and I am far from having the vanity to suppose that I have hit upon the correct medium between the placing too little or too much dependence upon the ramification of the veins. In proportion, however, as we advance in our knowledge of the ferns, we shall be able to set a more just estimate upon the importance of venation. The subject is yet in its infancy."

The second part of the work is nearly ready for publication, and will contain the continuation of the Dicksoniæ, including the beautiful and delicate genera, *Hymenophyllum* and *Trichomanes*.

The first part of the seventh volume of Hooker's 'Genera Plantarum' contains plates 601—650, with their descriptions. It "is rich in species from Australia and New Zealand; and there are many remarkable forms among them."

The forthcoming work on the British Fresh-water Algæ, by Mr. A. H. Hassall is to form one vol. 8vo., with seventy lithographic plates executed by the author, being magnified views of all the species of "Confervaceæ and Diatomaceæ hitherto discovered inhabiting the soft waters of the British Isles," with an account of the "modes of reproduction, growth, vitality, distribution, uses, classification and species of this extensive and interesting group of plants." Of the drawings it is remarked "that they are eminently adapted to illustrate, in the most satisfactory manner, the structure and mode of reproduction of these curious aquatics."

On the 8th of February letters arrived from Mr. Drummond, who is still engaged in his botanical researches at the Swan River. The letter contained "some singular mosses, allied to the Phasca of Europe in appearance." The plants which were brought in the same ship with the letters had not come to hand when the notice was written.

Mr. Gardner, who left England for Ceylon in September last, has been appointed to the charge of the Botanic Gardens at Kandy, vacant by the recent decease of Mr. Normansell.

Mr. Wm. Gardiner's intention of investigating the botanical treasures of Braemar was briefly noticed in our last.

Three botanists—Mr. C. A. Geyer, Mr. Lüders and Dr. Lindheimer—are about to engage in exploring the most interesting portions of

North-west America; their collections will be offered to subscribers in sets as they come to hand. Mr. Geyer was undecided as to his course and the particular field of his researches when he left St. Louis. Mr. Lüders expects to spend next winter and perhaps the following summer at a Roman-Catholic missionary station on the upper waters of Great Snake river. And Dr. Lindheimer will devote a few years to the exploration of Texas. The former collections of these botanists are stated by Dr. Gray to be "well selected, very complete and finely prepared."

The second article in the number is a "*Description and Figure of a new Species of Oxalis from Columbia, by W. J. H.*" This new species, named *O. Lindsææfolia*, was gathered by Mr. Wm. Lobb. It is said to be allied to *O. (Biophytum) sensitiva, L.*, but distinct from any hitherto published.

"*Description, with a Figure, of Hyobanche sanguinea, Thunb., by W. H. Harvey, Esq.*" This is a curious, fleshy, parasitical plant, the only species of the genus, and found on roots of various plants in the flats at the Cape of Good Hope, in September and October. The author's figure and description were taken from recent examples. He observes that "the genus is usually placed in *Orobanchæ*, but the structure of the ovary is so completely analogous to that of *Harveya*, which Sir W. J. Hooker has referred to the *Scrophularinæ*, that I do not see how they can be separated." The author further remarks that though the placentæ, strictly speaking, are formed from the introflexed margins of the valves, yet they meet in the centre of the capsule, and are there firmly united into a central piece, a line at right angles with the dissepiment showing where the surfaces coalesce. The distinctions between parietal and central placentæ appear but trifling, since, theoretically, all have the same origin; a central differing from a parietal placenta only in the greater degree of inflexion of the margins of the carpel. In the explanation of the plate the plant is called *H. coccinea*.

"*Description, with a Figure, of a new species of Thuja, the Alerse of Chili, by W. J. H.*" The tree producing the timber imported from the south of Chili, in the form of shingles or planks, under the name of Alerse or Alerze, appears to have been hitherto unknown to botanists. The author has in his herbarium "a specimen of a *Thuja* with immature fruit, gathered by Captain King in the Straits of Magelhaens." On this being shown to Mr. Bridges after his return from Chiloe, that gentleman pronounced it to be the true Alerse; and subsequently forwarded to the author a barren specimen of the same

plant, which he had gathered in the mountains near the Bay of Valdivia. Being an apparently undescribed species, the author has named it *Thuja tetragona*, and has given the character and description in the paper under notice. Captain King has given a full and interesting account of the Alerse, and its valuable properties as a timber, in his 'Voyage of the Adventure and Beagle,' (i. 282); which, together with the notices added by Captain Fitzroy, are quoted at length in the article. The tree appears to be one of great height and diameter, for Captain King states that "spars eighty or ninety feet long may be procured, and from eight hundred to one thousand boards are frequently obtained from a single tree; I was told even so many as one thousand five hundred out of one trunk." The planks are "seven or eight feet long, two inches thick, and nine or ten inches wide." The straightness of grain enables the natives to split the tree so as to make it appear as if "dressed with an adze, or even with a plane," but the axe is the only instrument used. The wood is used chiefly for "the floors, partitions and weather-boards of houses, and also for shingling the roof," and for the latter purpose it is said to be very durable: it neither shrinks nor warps, is close-grained and well adapted for furniture: staves for casks are also made from it by the country people. The bark serves to caulk the seams of vessels, and the spars have been found peculiarly strong and valuable for the masts.

Captain Fitzroy's account of the mode of obtaining the Alerse is very interesting. The natives work in family parties, at what are termed *Astilleros*, where the trees are felled. Here they work for four or five weeks, and then return home to attend to their potato-grounds and other domestic affairs, "till their feet heal, and a paralytic motion of the legs, acquired in the *Astillero*, has ceased," when "they return for another cargo, and work till their feet and limbs can stand it no longer." To this laborious life children are inured from a very early age.

"*Enumeration of the Mosses and Hepaticæ, collected in Brazil by George Gardner, Esq., drawn up by Sir W. J. Hooker, and W. Wilson, Esq.*" This list contains one hundred and twenty-six mosses (fourteen of which are described as new species), fourteen Hepaticæ and nine lichens.

ART. CCX. — Notice of '*The London Catalogue of British Plants. Published under the direction of the Botanical Society of London. Adapted for an Index Catalogue to British Herbaria;*

for marking Desiderata in Exchanges of Specimens ; for indicating the Species of local districts ; and for a guide to botanical collectors, by showing the comparative rarity or frequency of the several species. London : William Pamplin, 45, Frith-street, Soho. 1844.

THE title of this Catalogue, which we have given at full length, will sufficiently explain the objects proposed by the compilers. It may be had either as a large broadside, like the earlier edition of the Edinburgh Society's list, or as an 8vo. pamphlet. The arrangement adopted is that of the natural system ; and the nomenclature, in general, that of the fifth edition of Hooker's 'British Flora.' The species are numbered continuously from 1 to 1428 ; "that being deemed the most convenient method in a Catalogue, designed to be used as an Index to herbaria and duplicate stores." For an index to herbaria we have always had a predilection for the plan of numbering the genera continuously, and giving a new set of numbers — beginning with 1 — to the species under each genus : but this may be merely a matter of opinion. The list of *Salices* has been drawn up by the Rev. J. B. Leese ; and the arrangement of the *Rubi* was entrusted to Mr. Edwin Lees. The two gentlemen who have undertaken the arrangement of the species of these difficult and ill-understood genera, are well known to have devoted their attention to this particular subject for many years past. A list of about a hundred species is given, being such as are considered "either scarcely naturalised, or not recently found in the localities indicated for them : " and the names of "introduced species, now more or less naturalised, are printed in *italics*." The number of species &c. is thus summed up : —

Indigenous Species,	1305
Naturalized Species,	132
Excluded Species,	102
Varieties,	495

2034

From the numerous enquiries which have been addressed to us respecting a list of plants arranged on the natural system, we have but little doubt that the London Catalogue will attain a wide circulation among British botanists, without at all interfering with any of its predecessors, which may have been arranged on a different plan.

ART. CCXI.—*Varieties.*

461. *Note on Hieracium maculatum.* In your last number (Phytol. 804) Mr. Watson alludes to the luxuriant specimens of *Hieracium maculatum* in Smith's herbarium as being the effect of cultivation; I have several specimens of the plant collected from the top of the wall of our yard, which are equal to the largest size mentioned in 'English Flora.' There has been a good crop of them every summer, and the general height is from two to three feet. I have not seen any under that size when full grown, except some plants that have vegetated in the joints of the stones on the face of the wall, where there was not enough soil to nourish them, and consequently their smaller size may be easily ascribed to starvation. I gathered some specimens from the joints full two feet high; they had in general from five to seven leaves on the stem before they branched; the flowers numbered from about eighteen or twenty to nearly forty in some of the largest plants, besides numbers of buds not much larger than large pin-heads. The soil in which they grew consisted chiefly of decayed mortar. The wall in question is exposed to the full force of the summer's sun for the whole day, so that the plant must be able to grow in extremely dry situations, since it grew so luxuriantly there. I think that a great many discrepancies in statements of the mode of flowering, and also of the number of flowers, arise from not taking notice at what period the specimens described are gathered. I think if the state of the central flower were mentioned, in connexion with the number of flowers, it would be much more exact. I have generally found that when the central flower was fully expanded, the flowers and buds were generally about twenty in number; when the central flower had its seeds about ripe, as shown by the white down being conspicuous, there were from twenty-four to thirty; when the central flower had dispersed its seeds, they ranged nearer forty. The radical leaves were all decayed at the time the plant was in flower; but though withered, they were easily seen to accord with the description in 'English Flora.' The only discrepancy exhibited was in the arrangement of the floral branches. Smith says "stem *cymose*," "flower-stalks — form an irregular, sometimes compound, *cymose* panicle;" in the specimens I examined there was not one truly *cymose*, as explained in his 'Introduction,' where he defines a *cyme* — "its common stalks all spring from one centre," — but rather according with his description of *H.*

pulmonarium,—“the first partial stalk remaining always much lower than the rest,” the central flower above mentioned being always overtopped by the upper floral branches. Another character Smith does not allude to, is the gradual change of the leaves from the “radical ones on long hairy footstalks,” to the “scattered linear hairy bractees.” I have called those leaves stem-leaves below the first floral branch, but some of those at the base of other floral branches may also be called stem-leaves, not having departed from the dentated outline of the lower leaves, although much narrower. As to the question of its being a species distinct from *H. sylvaticum*, with which it is united in the Edinburgh Catalogue, I do not consider myself competent to offer an opinion.—*James Bladon ; Pont-y-Pool, Dec. 1843.*

462. *Note on Ornithopus perpusillus?* I was puzzled in the summer of 1842, with a small leguminous plant that I found on the top of one of our mountains, and which I could not then make out. It was not above an inch high in the highest part of it, and all its flowers and legumes were in pairs. I brought a sod of it home, containing about half-a-dozen plants. I earnestly watched them (until they were killed by the frosts of winter) both blossoming and seeding, but they did not deviate from their former size and appearance. The above plant [*Ornithopus perpusillus*] was the nearest I could find whose description partially agreed with my humble *protegé*. This past summer I determined to test it again; I accordingly sowed some of the seeds in February, March and April, in some old flower-pots. One of the seeds vegetated in about three weeks, the others were from six to ten weeks before they threw up their husks. Some of them had not produced any flowers when they fell under the harshness of the weather in the present week. Some of the smallest had leaves and stems about an inch and a half high; others had the leaves three inches and stems from three to six inches long: one plant in particular threw up a single stem nearly fifteen inches long: but they all produced flowers and legumes in pairs, except two heads, one of which had three flowers and the other five, but they were both unfruitful not producing one legume in either head. From the luxuriant growth of some of the plants, I now suspect that it is a variety of *O. perpusillus*. *Id. January 20, 1844.*

463. *Note on Campanulas.* During the two last summers having gathered a few plants of some of the few-flowered species when nearly flowering, and transplanted them into some flower-pots for the purpose of observing whether the spreading or closing of the sepals was constant in the same plant;—I observed the following peculiarity in

their flowering, but do not know whether it has been previously noticed or not. After the flower opens, and before the pollen is ripe, the position of the flower changes from pendant or drooping to nearly upright, or so much so as to permit the sun's rays to penetrate to the bottom of the flower: when the pollen is ripe and ready to be scattered, the flower then resumes its original position. Whether this is effected by the twisting of the peduncle, or by reversing the natural curve, I did not observe. The upper part of the peduncle during that period always presented a sigmoid flexure. With regard to the principal object of my attention, the spreading or closing of the calyx-segments, I think they ought to be observed more than they have hitherto been, as I suspect the spreading of their segments may be of use in determining nearly-allied species, as I have observed a constant difference in the whole contour of the flower accompanying the different position of the sepals.—*Id.*

464. *Note on the Equiseta.* I am very much pleased to find that Mr. Newman has paid attention to the different appearances of the section of the different species; as I have always suspected that if fully pursued through all our species, they would very much assist in their discrimination. The descriptions would have been more perfect had it been stated how the tubular passages increase in number from the root upwards. In *E. Telmateia* particularly they increase from about six or eight in the lowest internodes, regularly with every joint, they become too numerous and too minute to be counted with the unassisted eye. As they increase in number they decrease in size, while the stem does not decrease.—*Id.*

465. *Note on the effects of the late mild winter.* On Christmas-eve and Christmas-day I heard both the thrush and robin singing — one proof out of the many afforded of the unusual mildness of the season, which continued indeed until the end of January; since then we have had a long visit from the three winter graces — frost, snow and ice. In the Christmas week I saw a *Fuchsia* in full blossom in a garden eighteen miles North-east of York: it was unprotected from the weather, but was on the south side of the house. In my own garden, twelve miles North-east of York, I had strawberries in blossom, but for want, I suppose, of the warmer rays of the sun they were of a dingy yellow colour, instead of white. In a garden at York I saw a lilac-tree fast bursting into leaf; and in all parts of the country the same mild season seems to have prevailed to a degree unexampled in the memory of that exceedingly long-lived person — “the oldest inhabitant.”—*F. Orpen Morris; February 15, 1844.*

466. *On Jungermannia Francisci and J. byssacea.* At the suggestion of a correspondent, whom I have been the means of leading into error concerning these two species, I willingly acknowledge that I have not properly understood them, until my friend Mr. Spruce supplied me with genuine examples of *J. Francisci*, a species which I have never gathered. I must therefore request all my correspondents who have received from me specimens named "*J. Francisci*," to substitute the name "*J. byssacea*." In extenuation of the mistake which I have thus committed, let me remark that in the monograph by Sir W. J. Hooker, *J. bifida* of Schmidel is twice cited, once under *J. byssacea*, t. 12, and again, doubtfully, under *J. Francisci*, t. 49, where will be found also the following observation:—"In habit *J. Francisci* certainly approaches *J. byssacea*, but the upright growth of the surculi, and the more concave and less deeply notched leaves are of themselves sufficient marks of discrimination; and when the presence of the stipules is taken into consideration, no difficulty in distinguishing them will be found to occur." Now the fact is, that although *J. byssacea* does sometimes present itself with stipules so very obscure as to escape the ordinary means of detection (in which state I have never failed to recognise it as *J. byssacea*), there are numerous cases where the stipules are quite obvious (as in specimens gathered by Mr. Cruickshank near Dumfries, and in my own specimens gathered on Delamere-forest and elsewhere), so that there can be no doubt that *J. byssacea* ought to be placed in that section of the genus which is possessed of stipules. I have long suspected the stipule-bearing plant was not essentially distinct from *J. byssacea*, but while I was ignorant of the true *J. Francisci*, I naturally referred it to that species. It now remains to ascertain whether our *J. byssacea* is the species so called by Roth. On Delamere-forest, Cheshire, I have seen it growing on blocks of sandstone, in small, compact, rounded tufts, the surculi being of course erect, and bearing very evident stipules. — *W. Wilson; Warrington, February 20, 1844.*

467. *On the parasitism of Orobanche.* While in Wales last summer, I obtained very satisfactory evidence of the parasitical habit of *Orobanche major* and *O. barbata*. As regards the latter species, there is already a correct representation (as far as it goes) given at tab. 2859 of the 'Supplement to English Botany;' but as nothing is stated in the description beyond the mere fact of parasitism, I may be pardoned for presenting the readers of 'The Phytologist' with the result of my own observations, which were made independently of what had been

done by others. Of all cases of parasitism by means of roots, none are more striking than those which occur in *Orobanche*, inasmuch as the parasite does not attach itself laterally, but at the very extremity of a root of the nutrient plant; *O. barbata* seizing upon the roots of ivy, while *O. major* attaches itself to the roots of *Ulex europæus*. In the latter case, the root of *Ulex* becomes very much swelled at the point of contact; a longitudinal section of it and of the scaly rhizoma of the *Orobanche*, presented the appearance of such complete union of the cellular tissue of both plants, that the exact line of junction could not be absolutely determined; and it seemed as if even the vascular tissue of the two plants had become intimately blended; the base of the rhizoma of the *Orobanche* being continuous with the root of the *Ulex*. It is difficult to comprehend in what way the seeds of *Orobanche* are brought into contact with the roots of its prey, unless it be by the agency of earthworms or slugs. Perhaps some one who has facilities for the purpose, will undertake to study the germination of these plants, for the benefit of the readers of 'The Phytologist.'—*Id.*

468. *Note on Villarsia nymphæoides*, (Phytol. 904).* The *Villarsia nymphæoides* is met with in an old deserted bed of the Clyde below Govan, on the north side of the river, and in the dam very abundantly between Partrick and Govan-ferry, immediately west of York-hill, where it has been abundantly found in both places for more than twenty years; but I remember well its introduction. At a time when we were cleaning out the pond in the old Botanic Garden, I filled my specimen-box with it, and going at the time to the Highlands, I emptied it out in both these places before going on board the steam-boat at Govan-ferry. I also put in some of the *Stratiotes* and *Nuphar lutea*, both of which continue to exist, although they have not spread like the other. Thirty-five years ago the Rev. Mr. M'Ritchie, of the parish of Cluney (Perthshire), introduced the *Villarsia* into the Loch of Cluney, and it has spread over several acres of its surface. We put a good many plants into the Kelvin three years ago; and last summer it made some appearance opposite the garden.—*Stewart Murray; Botanic Garden, Glasgow, March 9, 1844.*

469. *Effect of cultivation on Hyacinthus non-scriptus*, Linn. When this plant is taken from its native woods, and planted in an ordinary flower-bed, I have reason to believe that the following changes take place in its habit and characters; namely, the inflorescence ceases to be either secund or drooping, and the flowers become more widely

* Communicated by Professor Balfour.

campanulate. I have nowhere read any notice of this change, nor am I aware either of the length of time required to produce it, or if it be a uniform result. The observations on which my remarks are founded, having been made many years since, and not being in all points perfectly conclusive, I am now on the point of renewing them, and my reason for bringing the subject before the readers of 'The Phytologist' at this time, instead of waiting until I have made the experiment, is, that others may try it as well as myself. My own intention is to obtain some of the roots from a wood some time during the next fortnight, and plant them in various aspects of my garden, and in soils of different kind; and I should recommend others who make the experiment, to vary it in the same manner. I should also advise their obtaining the bulbs immediately on reading this note, as it will very soon be too late for removing the roots in time for this year's flowering.—*T. Bell Salter; Ryde, March 11, 1844.*

470. *Note on the arrangement of Mosses for the Herbarium.* The plan mentioned by Mr. Townsend in your last number (Phytol. 901) of arranging mosses by glueing all the specimens to the paper, is very little used I think by any one who attempts to *study* that tribe of plants; for no modern muscologist would be satisfied with the examination of a moss when so fastened down, however white and transparent the paper may be; nor am I aware of any one who aims at investigating them by putting his herbarium-sheets under the microscope. The plan of keeping mosses loose in cases or pockets, is certainly a step in advance of the above; but the most desirable method is perhaps found in combining the two: this is productive of a greater degree of neatness, and offers better facilities for reference. Specimens in various stages of growth, and from different localities, may be glued down so as to present at a glance the general outline and prominent characters of a species; while two small cases or pockets should also be attached to the paper, one containing loose specimens for minute examination, the other dissections of the peristome &c., mounted between layers of talc for the microscope. It is very useful to have a small book containing a specimen or two of each species, either glued down or enclosed in similar cases, to carry in the pocket for reference, when the principal collection may not be at hand. — *J. Sidebotham; Manchester, March 13, 1844.*

471. *Alectoria jubata.* I have much pleasure in communicating that my hope is already realized of being able to supply my subscribers to this season's botanical distribution, with specimens of *Alectoria jubata* bearing *true fructification*, (Phytol. 918). This interesting

rarity I collected in Deerhill-wood, on the 5th of March, whilst wading above knee-deep in snow ! The day was fair and frosty, and the hard surface of the snow on the roads tempted me to the enjoyment of the walk ; and being desirous of a peep into the woods, to mark the difference of their wintry aspect from that of the genial summer, when every tree is loaded with verdure, and alive with the music of birds, I prolonged my walk to the base of the Sidlaws, and entered the woodlands. The scene was bleak and cheerless. The young leaves were yet cradled in their buds. The breeze indeed was there, but its softness was wanting, and no breath of sweet flowers nor song of happy birds, did it diffuse around, as it sullenly moaned through the dark pines. Even the mossy carpet was wanting, as snow covered the ground to the depth of several feet, which, being here quite soft, rendered it necessary to *wade* instead of walk, and consequently made one's progress slow and fatiguing. Yet even here, in the midst of winter's sterility, the lover of Flora could enjoy a rich banquet, for the trees are in many places profusely decorated with Lichens. Besides the Alectoria I have here collected the following species, *all in fructification*, although on some of them the apothecia were but sparingly developed. *Usnea barbata*, *U. florida*, *Cetraria glauca*, *C. sepincola*, *Borreria furfuracea*, *Parmelia physodes*, *Evernia prunastri* and *Ramalina fastigiata*. — *William Gardiner* ; 40, *Overgate, Dundee, March 18, 1844.*

ART. CCXII.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF LONDON.

March 1, 1844. — J. E. Gray, Esq., F.R.S., &c., President, in the chair. Various donations were announced, including some species of *Algæ* from Cape Raceife, Algoa Bay, from Mr. Bowerbank.

Read the conclusion of the paper commenced at the last meeting, being 'A Synoptical View of the British Fruticose Rubi, arranged in Groups, with explanatory remarks, by Edwin Lees, Esq., F.L.S.' It is unnecessary to enter into further details respecting Mr. Lees' views on the groups, species and varieties of British Rubi, as they are now before the botanical world, in 'The London Catalogue of British Plants,' just published by the Botanical Society. The paper was accompanied by drawings and numerous specimens, the latter are deposited in the Society's herbarium.—*G. E. D.*

THE RAY SOCIETY.

This Society has issued a prospectus and list of officers and members, which we give below. The names of Dr. Robert Brown, Mr. Bennett and Mr. Borrer are a tower of strength to this undertaking, and will doubtless induce many of our botanists to enroll themselves as members.

I. THAT this Society shall be called THE RAY SOCIETY; and that its object shall be the promotion of Natural History, by the printing of original works in Zoology and Botany; of new editions of works of established merit; of rare Tracts and MSS.; and of translations and reprints of foreign works which are generally inaccessible from the language in which they are written, or from the manner in which they have been published.

N.B. — It will be a direction to the Council that they shall not print anything that appears to them suitable to the Transactions of established Societies; nor any work which a respectable publisher shall undertake to publish without charge to the author.

II. Every subscriber of One Guinea annually to be considered a Member of the Society; and no Member shall incur any liability beyond the annual subscription.

III. That the annual subscriptions shall be paid in advance, and considered to be due on the 2nd day of February in each year: and that such Members as do not signify their intention to withdraw from the Society before the 2nd day of June shall be considered to continue Members, and be liable for the year's subscription.

IV. The management of the Society shall be vested in a Council of Twenty-one Members, of whom one third shall have their stated residences in London. The Council to be elected for two years, when one third shall retire.

V. That the Council hereafter shall be elected by the Members, at a meeting to be held at the time and place of the meeting of the British Association for the Advancement of Science.

VI. That the Council shall elect a Secretary, who shall be *ex officio* a Member of the Council.

VII. The annual subscription shall be deposited in a chartered bank, in the name of the Secretary and two Members of the Council: and the fund shall be exclusively applied in publishing such works as the Council shall sanction.

VIII. The accounts of the receipt and expenditure of the Society shall be examined annually by two Auditors appointed by the Council, the Auditors to be Members of the Society who are not Members of Council, and their statement circulated among the Subscribers.

IX. That the number of copies of the Society's publications shall, unless otherwise directed by the Council, be limited to the number of actual subscribers who shall have been enrolled, and paid their subscriptions, on or before the 2nd day of June.

COUNCIL, 1844—6.

Chas. C. Babington, M.A., F.L.S., G.S., Cambridge.
 J. H. Balfour, M.D., Professor of Botany in the University of Glasgow.
 Robert Ball, Esq., M.R.I.A., Sec. of Royal Zoological Society of Ireland, and of the Geological Society of Ireland.
 Thomas Bell, Esq., F.R.S., L.S., G.S. &c., Professor of Zoology, King's College, London.
 Geo. Busk, Esq., Dreadnought Hospital, Greenwich
 Rev. M. J. Berkeley, M.A., F.L.S., King's Cliffe.
 Jas. S. Bowerbank, Esq., F.R.S., G.S., &c., London.
 J. G. Children, Esq., F.R.S., S.A., L.S., &c., London.
 J. Dalrymple, Esq., London.
 C. Daubeny, M.D., F.R.S., L.S., G.S., &c., Professor of Chemistry and Botany, Oxford.
 Sir Philip G. Egerton, Bart., M.P., F.R.S., G.S., &c., Oulton Park, Cheshire.
 Edward Forbes, Esq., F.L.S., &c., Prof. of Botany, King's College, London.
 Robert K. Greville, Esq., F.R.S.E., H.M.C.P.S., &c., Edinburgh.
 Sir William Jardine, Bart., F.R.S.E., L.S., &c., Applegarth.
 Rev. Leonard Jenyns, M.A., F.L.S., &c., Swaffham Bulbeck.
 George Johnston, M.D., Berwick-upon-Tweed.
 Edwin Lankester, M.D., F.L.S., &c., London.
 Professor John Phillips, F.R.S., G.S., &c., York.
 Hugh E. Strickland, Esq., M.A., F.G.S., &c., Cracombe House.
 William Thompson, Esq., Pres. Nat. Hist. Society of Belfast.
 N. B. Ward, Esq., F.L.S., &c., London.

MEMBERS OF THE RAY SOCIETY.

Academy, Royal Irish	Balfour, Professor, M.D.
Alder, Joshua, Esq.	Ball, John, Esq., B.A., M.R.I.A., &c.
Allcard, John, Esq.	Ball, Robert, Esq., M.R.I.A., Vice Pres.
Allis, Thomas H., Esq.	Geol. Soc. Dublin
Ansted, Professor, M.A., F.R.S., G.S., &c.	Balloch, Robert, Esq.
Ashmolean Museum, Oxford	Barrow, Peter, Esq.
Atkinson, Rev. J. C.	Bartlett, J. P., Esq.
Aylesby, — Esq.	Bean, William, Esq.
	Belfast Library
Babington, C. C., M.A., F.L.S., G.S. &c.	Bell, Matthew, Esq., M.P., F.H.S., &c.
Babington, C., B.A.	Bell, Professor, F.R.S., L.S., G.S., &c.
Baird, Rev. John	Bell, Robert J., Esq.
Baird, Willm., M.D.	Bennett, J. J., Esq., F.R.S., L.S., Z.S. &c.

THE PHYTOLOGIST.

No. XXXVI.

MAY, MDCCCXLIV.

PRICE 1s.

ART. CCXIII.—*Analytical Notice, with Illustrations, of a ‘History of British Ferns and allied Genera.’* By EDWARD NEWMAN, F.L.S., Z.S., &c. London: Van Voorst, 1844.



Lomaria spicata.

WE scarcely know a paragraph more replete with truth than that selected by the author for his motto. “Monographers, come from whence they may, have, I think, fair pretence to challenge some regard and approbation from the lovers of Natural History; for as no man can alone investigate all the works of Nature, these partial writers may, each in their department, be more accurate in their discoveries, and freer from errors than more general writers, and so by degrees

may pave the way to an universal correct Natural History.”* If this be true (and who shall gainsay it?) how true also is the converse of the proposition! — General writers, come from whence they may, have slight pretence to challenge regard and approbation from the lovers of Natural History: for as no man can alone investigate all the works of Nature, these general writers must be less accurate in their discoveries, and less free from errors than more partial writers, and so by degrees they introduce manifold errors into Natural History. Without making any attempt to criticise the works of our masters in the science, and confining our attention entirely to living authors, we may, without hesitation, give the unqualified precedence to monographers. We may safely assert that we know of no botanist who combines writing *much* with writing *well*.

In the field the author has chosen for his labours, he may be said to have no competitor; it is true, there are two other works treating precisely on the same subject, but one of these, Bolton’s ‘*Filices*,’ has long been out of print, and the other, Francis’ ‘*Analysis*,’ rather brings into one point of view our knowledge of ferns as derived from Sir J. E. Smith, Sir W. J. Hooker, and Mr. Mackay, than supplies us with a well digested history of that beautiful tribe.

The classification of ferns has lately received great assistance from the application of a character either overlooked or neglected by all the older botanical writers; we allude to the venation. Presl on the continent, and Mr. John Smith in this country, have taken the lead in bringing this valuable character into notice; and the result of its application seems rather to illustrate the value of the Linnean grouping of these plants, than detract from its utility or interfere with its detail, while, at the same time, it must be acknowledged, it decidedly discomposes the labours of Sir J. E. Smith, and induces a smile at the very complacent manner in which he congratulates himself on the perfection of his own performances.†

In classification, our author is decidedly a pupil of the modern school, without, however, being a servile follower of its able founders. He works with their characters, but does not always attain the same results. Consequently, his nomenclature is *toto cælo* at variance with that so long in general use. On the first promulgation of his views on this subject, in 1839-40, there was a general denuncia-

* Gilbert White.

† See the introductory observations to the *Cryptogamia Filices* in the 4th volume of the ‘*English Flora*.’

tion of changes so radical and complete ; but Mr. John Smith's paper on the same subject, read almost immediately afterwards at the Linnean Society, and perhaps the most profound and useful treatise ever presented to that body, obtained a hearing and a respect which was denied to Mr. Newman as an unknown botanist. We believe this is always the case ; *great* changes, to ensure prompt attention and respect must be introduced by *great* men, by men of established reputation ; or they fail of the desired object. Such was very decidedly the case as regards our author ; and botanists, who one month proclaimed the absurdity of Mr. Newman's innovations, were seen the following month bending the supple knee to the same innovations, when sanctioned by the European reputation of Mr. Smith. Soon after this confirmation of Mr. Newman's views, Dr. Balfour and Mr. Babington, the authors of the Edinburgh Catalogue, adopted the alterations, and were the means of disseminating them from John o' Groat's to the Land's End. But, in the midst of its successful career, the new nomenclature met a most decided check in the publication of the fifth edition of Sir W. Hooker's 'British Flora,' wherein we were astonished to find the changes introduced by Mr. Newman, not only fathered upon the authors of the Edinburgh Catalogue, but the new names given as synonymes, and the old nomenclature restored in all its glory. The 'British Flora' was almost immediately followed by Mr. Babington's Manual, and very recently by the list of the Botanical Society of London, principally from the pen of that accomplished botanist, Mr. Watson ; and both these authors adopt Mr. Newman's nomenclature. It would be idle for us to deny the weight and authority of a name like Sir W. Hooker's, and we do not hesitate to express our belief that it will have great influence in retarding the adoption of the altered nomenclature of ferns ; but only of retarding it : the time has now arrived when each successive author enquires for himself, when he takes little or nothing for granted, and without pinning his faith on the sleeve of an individual writer, ventures to consult the works of Ray,* Schkuhr, Kunze, Swartz, Weiss, Presl, Schott, Dietrich, Decandolle, Roth, Wahlenberg, Weber, Hoffmann, &c., and to form a judgment of his own. This being the case, we are willing to abide the issue ; and confidently hope eventually to see that nomenclature adopted which possesses the greatest intrinsic

* No man can form a just estimate of what is due to each classification of ferns, without going back even to Ray, whose 'Methodus Plantarum' contains the draft of the system, which, under Sir J. E. Smith, Swartz and Willdenow, subsequently became so famous.

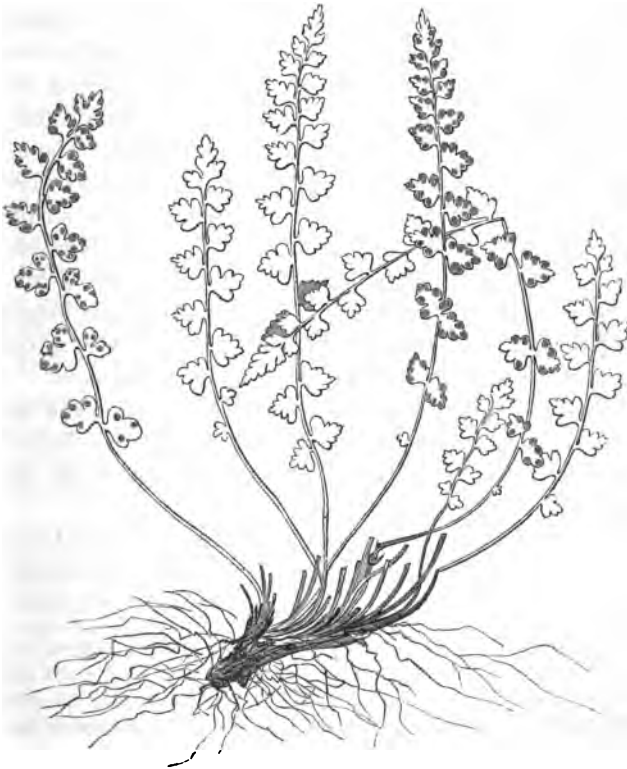
merit, combined with the claim of priority, without reference to the reputation of one author or the obscurity of another.

In the synopsis with which the author commences his 'History,' there is evinced a total disregard of established notions ; but in the History itself, this disregard is kept more under control, and large concessions are made to what the author evidently regards as received errors. Thus, the artificial genus *Polypodium* is preserved in the History, but the species are separated in the synopsis : the names of *Polypodium calcareum* and *Hymenophyllum Wilsoni* are given in the History, the prior and original names of *Polypodium robertianum* (*Hoffmann*) and *Hymenophyllum unilaterale* (*Willdenow*) in the synopsis. These and numerous other instances of attempted conciliation, of noticing without reforming the manifold errors which have so long been perpetuated through the most gross carelessness and inattention, were, in our opinion, uncalled for ; and we think the author would have done better to revert at once to what he considered the correct nomenclature, even though every name employed by Sir J. E. Smith had been thereby obliterated from the catalogue of British ferns. The number of errors into which Sir J. E. Smith has fallen, exceeds all belief ; and some of them appear inexplicable. Knowing how intimately Sir James was acquainted with the works of Roth and Hoffmann, seeing how constantly he quotes them throughout his descriptions of the ferns, it seems scarcely credible that in two instances at least he should have renamed ferns which they had carefully described, and have given them to the world as altogether new ; and that in another instance he should have described one fern under three names, dwelling on differences which had no existence. The axiom, *de mortuis nil nisi bonum*, was doubtless conceived in love, and is worthy of general acceptance ; but we deny that the grave should be made thus to consecrate error, thereby conferring an injury both on the dead and the living, robbing those who are departed of their just reputation, and diverting the living student from the paths of truth.

The arrangement adopted in Mr. Newman's 'History,' is not characterised by much novelty. The divisions are these.

1. *Equisetaceæ*.
2. *Adiantaceæ*, including *Adiantum*, *Lomaria* and *Pteris*.
3. *Polypodiaceæ*, including *Allosorus*, *Polypodium* and *Woodsia*.
4. *Aspidiaceæ*, including *Cystopteris*, *Polystichum* and *Lastræa*.
5. *Aspleniaceæ*, including *Athyrium*, *Asplenium*, *Scolopendrium* and *Ceterach*.
6. *Hymenophyllaceæ*, including *Trichomanes* and *Hymenophyllum*.

- 7. *Osmundaceæ*, *Osmunda* only.
- 8. *Ophioglossaceæ*, including *Botrychium* and *Ophioglossum*.
- 9. *Lycopodiaceæ*, including *Lycopodium* and *Isoetes*.
- 10. *Marsiliaceæ*, *Pilularia* only.



Woodsia alpina

It were almost an insult to the understandings of our fellow-labourers in the field of botanical science, to consider it necessary to point out to them that these divisions, by whatever name they may be called, are of very unequal value. Thus, while the line between the Polypodiaceæ and Aspidiaceæ is almost incapable of definition, that between Equisetaceæ and all the rest is so manifest, as to have led some modern botanists to disconnect them from the cryptogamous and place them among phænogamous plants. These discrepancies might furnish the hypercritic with a fruitful theme, and the introductory synopsis might even be employed as affording the weapons of attack.

1. *Equisetaceæ*. These have been so recently described in the pages of 'The Phytologist,' that there has been little time or opportunity for alteration or addition; but we may notice that a further guide to the detection of species is afforded in the careful figures of transverse sections of the stem of each.

2. *Adiantaceæ*. In this group we invite attention to the detailed description of the fructification of *Pteris*. It seems rather extraordinary that although Mr. Newman's views upon this subject have been four years before the public, that they have been allowed to pass unnoticed by Sir W. Hooker and Mr. Babington, both of whom, in their subsequently published works, revert to the old, and, as we consider, totally erroneous description. This question remains an open one; but we are unable to resist the conviction, that Mr. Newman's solution, backed as we find it by the careful observations of Mr. Wilson and Mr. Jenner, is the correct one: the passage is too long to transfer to our pages, and we have already cited (Phytol. 836) a compressed description of the genus from the 'Naturalists' Almanack.'

3. *Polypodiaceæ*. In this group we have to mention the restoration of Bolton's original name of *alpina* to the *Woodsia hyperborea* of Swartz. On the preceding page we have introduced Mr. Newman's portraiture of this pretty little fern.

4. *Aspidiaceæ*. Under this division the *dilatata* question is gravely discussed, and, as we think, satisfactorily settled. The author begins with this candid admission of his former erroneous opinions.

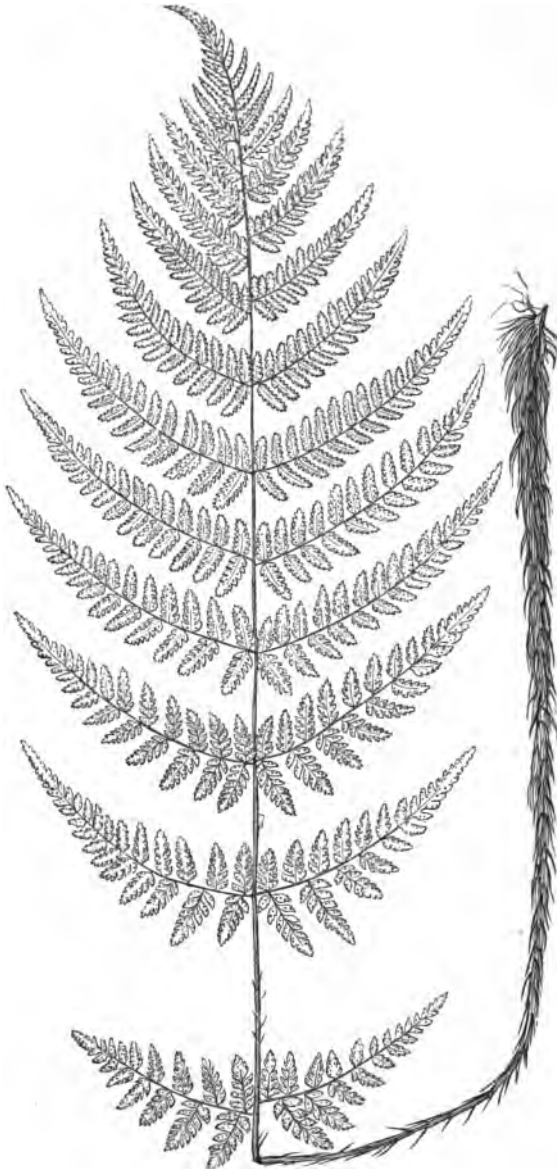
"On looking more carefully into those *similarities* which I supposed of sufficient importance to warrant the association of many forms under the specific name of *dilatata*, I find them invariably the concomitants of youth rather than the characteristics of perfection, and they become by degrees more and more obliterated, as the plants year by year advance towards maturity. The *differences*, on the other hand, so equivocally developed in seedling or starved individuals, become distinctly pronounced in the adult and vigorous; and a comparison of these, leaves me no choice but to cancel my former observations as erroneous, and to consider the names *dilatata* and *spinulosa* as having been applied to a family rather than to a species. Admitting this, it becomes a task of great delicacy to select an individual which shall bear alone all the honors of either patronymic. Fully appreciating the difficulty of the case, I have omitted both these names, and employed others which were originally, as now, restricted to *one species*."—p. 208.

Three species are then carefully and fully described, under the names of *Lastræa spinosa*, *L. multiflora* and *L. recurva*; the descriptions occupying twenty-seven pages, and being accompanied by numerous figures illustrating the circumscription of frond, the form of involucre, and the character of the scales. All the three appear to

be most abundant species; together they constitute the *Polypodium cristatum* of Hudson, the *Aspidium dilatatum* of Smith and Babington, and the *Aspidium spinulosum* of Hooker. It will doubtless be objected, by some of our readers, that the old names should have been retained in preference to those with which we are comparatively unacquainted. On this point we are disposed to join issue: we submit that it is impossible to decide, from a Latin description of two or three lines, which of these species was the *spinulosum* of Müller or the *dilatatum* of Hoffmann; and we think Mr. Newman has done perfectly right in adopting for each the earliest name which combines the two postulates of being accompanied by an *intelligible* description, and of being *confined to a single species*. This practice is somewhat stringent perhaps, but it is certainly wholesome. On the two next pages we introduce figures of *Lastræa multiflora* and *L. recurva* as the two species which possess the greatest claim to be considered additions to the British Flora. Circumscription of frond is a point strenuously insisted on by the author, as separating these species; since, however it may approach in young specimens, it recedes in those which are mature: but add to this that the involucre, the scales, the glands, the scent, the venation, the form of pinnules (in one convex in the other concave), are all widely and unvaryingly different, he indeed were a bold man who, after going into such a mass of evidence, shall utterly reject the inferences, and again blend these two species with the third (*L. spinosa*) under a single name. We must not, however, be understood as expressing any decided opinion that Mr. Newman's species will be generally or rapidly adopted. We are too well acquainted with the disinclination there is to adopt the views of a *new man* (the pun is quite unintentional)—to enter on the difficult task of careful collation and examination, except under the banner of authority: it is only by degrees, and through the exercise of the most perfect candour, that conviction will reach the mind of the enquiring botanist.

With regard to the species which we hold as the most important addition to our Flora — *Lastræa recurva* — Mr. Newman has already strong opponents, as will appear from the following paragraph.

“ When I first saw this beautiful fern in the North of Ireland, I was in company with Mr. William Bennett, and I instantly pronounced it a species new to Britain. I traced it in many of the Irish counties with the same feeling of certainty; and it was only in deference to the judgment of three distinguished botanists, the late Professor Don, Mr. Moore of Dublin, and Mr. Babington of Cambridge, that I at last abandoned my opinion, and consented to give the species as a variety of *dilatata*. Profes-



Lastrea multiflora.

sor Don, although he had frequent opportunities of consulting my somewhat ample materials on the subject, never in any degree wavered from his first opinion ; and Mr. Moore and Mr. Babington, who have enjoyed the best possible opportunities of forming an accurate decision, having seen it growing in all states and in an infinite variety

*Lastrea recurva.*

of stations, still consider it a mere form of *Last. dilatata*. The testimony of Sir W. Hooker I have already adduced. In adding another species to our list of British ferns, I think it but a matter of justice to my readers to show that I stand opposed to four of our most distinguished botanists. On the other hand, it is no little consolation that I

am able to announce the judgment of Messrs. Bree, Borrer and Jenner, as corresponding with my own."—p. 233.

The characters by which these ferns are to be distinguished, have already appeared in the pages of 'The Phytologist,' in our notice of the 'Naturalist's Almanack,' (Phytol. 837); the only alteration to which we have to invite the attention of botanists, is the substitution of the name of *multiflora* for that of *dilatata*.

5. *Aspleniaceæ*. Under *Athyrium Filix-femina*, the author comprehends five of Roth's species, without expressing any very decided opinion on the subject of their value. His views may be gathered from the following passage.

"By retaining all these forms under the name of *Filix-femina*, in accordance with the views of Decandolle, Sadler, Hooker and Babington, I rather bow to the views of these eminent botanists than follow any of my own. It seems to me that three at least of the forms described by Roth, those adopted in the 'Naturalists' Almanack,' have the habit and appearance of species; but at the same time I cannot say that the grounds of separation adduced by Roth appear to me satisfactory: neither the scales, involucre, nor position of the clusters of capsules, are adduced as evidence; and surely, before adopting the species, we must learn whether these are dissimilar or identical. Roth is entitled to great praise for what he has done, but it is left for others to earn still greater praise by adducing real diagnostics to corroborate his views."—p. 247.

The question is perhaps one of the most difficult in the study of our British ferns. It appears that two of the most acute discriminators of specific differences insist on these plants being entitled to the rank of species; while others, whose names stand equally high, dismiss them as totally unworthy of mention, even as varieties: the latter view is adopted by British botanists, and seems to us uncourteous in the extreme. How can we in fairness object to the course occasionally pursued on the continent, of neglecting names imposed in Great Britain, in order that later continental names may be substituted, while we are deliberately and designedly neglecting the labours of a man like Roth, whose extreme carefulness is a pattern to us all?

After *Athyrium Filix-femina*, *Asplenium fontanum*, or perhaps more correctly, *A. Halleri*, should have followed in course, but the author omits it altogether, and passes on to *A. lanceolatum*. It is, perhaps, not generally known to what chance we are indebted for this fern in the list of British plants; the following particulars may interest some of our readers. Hudson, in his 'Flora Anglica,' gives *Polypodium fontanum* with the following habitat: "*Habitat in muris antiquis et rupibus. supra Hammersham Church, D. Bradney; in locis saxosis prope Wybourn in Westmorlandia.*" Now if we study Hudson's

mode of giving habitats, and his general accuracy as to counties, we may translate the passage thus: *Habitat* old walls and rocks above Hammersham Church, (authority) Mr. Bradney; and stony places about Wybourn, *both* in Westmoreland." The word *both* of course is not in the Latin, but the plan of Hudson's work warrants its insertion. Withering translates the passage fairly and literally, but other authors do not deserve the like praise. Sir J. E. Smith gives it thus, "On Amersham or, Agmondesham, church, Bucks, found by a Mr. Bradney, according to Hudson." This translation, it will be seen, is totally at variance with the original. We do not consider ourselves called on to pursue the subject further than to say that we cordially approve of the omission of *Asplenium fontanum* from the catalogue of British ferns.

Asplenium Adiantum-nigrum affords an instance of three continental being blended in one British species; and we again have to censure the unfairness or carelessness which has been instrumental to the result. We do not urge the adoption of all the species, but we urge the necessity of a dispassionate enquiry, and the expression of a candid opinion as to their value. We cite the descriptions from Sadler, as quoted in Mr. Newman's Appendix.

"*Asplenium obtusum*, Kit. Fronde ovato-triangulari basi bipinnatifida, medio bipinnata, apice simpliciter pinnata: pinnulis oblongis et laciniis obtusis remotis, apice inæqualiter obtuse dentatis, rhachi alata. * * * 'E rhizomate horizontali fusco perpendiculariter descendunt radiculæ tenues fuscescentes. Stipites 3—4-pollicares basi fuscescentes canaliculati nitidi e rhizomate adscendunt. Rhachis viridis est et margine foliaceo-viridi cingitur. Frons 3—4-pollicaris ovato-triangularis, viridis; siccatione obscurior evadens, bipinnata (*basi tripinnatifida*) est, pinnarum inferiorum pinnulis primariis pinnatifidis, laciniis cuneiformibus obtusis, apice inæqualiter dentatis, pinnulæ superiores etiam obtuse dentatæ sunt. Sori congenerum, in qualibet lacinia aut pinnula 3—4. Indusia membranacea.' Sadl. Adumbr. Epiph. l.c." Sadler, De Filicibus Veris Hungariæ, &c. p. 50.

"*Asplenium Adiantum-nigrum*, L. Fronde ovato-triangulari, basi bipinnatifida medio bipinnata, apice simpliciter pinnata, pinnulis oblongis et laciniis acutis approximatis acute dentatis, rhachi non alata. * * * E phrasi characteristicâ hujus plantæ et e descriptione præcedenti adnexa differentia harum adfinium specierum satis liquet."—Id. p. 51.

"*Asplenium acutum*, Bory. Fronde ovato-triangulari longe acuminata, pinnis pinnulisque oblongo-lanceolatis longe acuminatis, pinnis propriis et laciniis lanceolatis, approximatis, acute et profunde inciso-dentatis; dentibus subbidenticulatis. * * * 'Radix et stipites Aspl. Ad. nigri: radix quippe dense fibrosa, fuscescens. Stipites ex una radice plures primum cum rhachide virides, demum profunde purpurascens-fuscescentes, nitidi, supra sulcati. Frons—siccatione facillime nigrescens— $\frac{1}{2}$ —1-pedalis, acutissime acuminata, inferius perfecte tripinnata, pinnis propriis acute incisais, in

medio bipinnata, in apice rhachis longe producta, solum acute dentato-incisa est, quod idem de rhachidibus propriis pinnarum oblongo-lanceolarum longe v. longissime productarum valet. Laciniae omnes lanceolatae, acutae, acutissimae et profunde inciso-dentatae. Sori breves solitarii in laciniiis, has demum obtegentes. Indusia membranacea.' Sadl. Epiph. l. c."—Id. p. 51.

6. *Hymenophyllaceæ*. *Trichomanes speciosum*. Although four years have now elapsed, it will be fresh in the recollection of many of our readers, how strenuously the author urged the adoption of the name *speciosum* in preference to that of *brevisetum*; how the world of British botanists was almost to a man arrayed against him; how it was held to be impossible either that a tropical plant should exist in Ireland, or that, so existing, Robert Brown should have overlooked the fact. It has come within the compass of our knowledge, that the daring alteration was repeatedly pointed out as a proof of our author's want of information and want of ability to grapple with the subject of nomenclature. What has now become of the name *brevisetum*? There is but one instance of its being retained; we allude to the 5th edition of Hooker's 'British Flora:' and here we find the name *brevisetum* restored, and that of *speciosum* degraded to the rank of a synonyme; not as the *speciosum* of Willdenow — not as the *speciosum* of Mr. Newman, who pointed out its identity with Willdenow's plant, but of the Edinburgh Catalogue; and yet the authors of that Catalogue merely adopt Mr. Newman's views, as is candidly admitted by Mr. Babington himself.

We turn to a pleasanter subject, the discovery of a new form, if not species, of *Trichomanes*; one so distinct that Mr. Smith supposes it to be the *Trich. radicans* of Swartz. Mr. Mackay's specimens now before us, are so labelled on Mr. Smith's authority; but surely this has been done somewhat too hastily, for in all the specimens of *T. radicans* we have seen, the frond is perfectly sessile, whereas in all the Irish specimens it is distinctly stipitate. Mr. Newman has, we think, exercised a sound discretion in keeping the name of *radicans* quite out of view. Whether or not the new plant could by possibility be the true *T. radicans*; whether the Killarney plant was really distinct, and whether, if not distinct, Swartz's name should not be applied to both; are questions which were agitated for months without any satisfactory result. The author, after citing the published notices of this interesting plant, thus continues.

"Mr. Andrews has obligingly furnished me with the following characters of the two plants. The first I will call *Trichomanes speciosum*, var. *Andrewsii*.

"*Trichomanes* —? Frond lanceolate, twice pinnated, lower pinnae distant,



Frond of *Trichomanes speciosum*, var. *Andrewsii*, natural size.

a. Portions of pinnules showing the recurved receptacles.

short, ultimate segments of the pinnae decurrent serrated lobed linear acute. Rachis winged, very long. Receptacles six times longer than the involucre. Root long scarcely tomentose. Habitat, moist rocky cave, Glouin Caragh, Kerry.

“ *Trichomanes speciosum*. Frond angular thrice pinnated, lowest pinnae longest

densely crowded and tripinnated, lobes of the pinnæ linear blunt. Rachis winged, short. Receptacles two or three times longer than the involucre. Root thick densely tomentose. Habitat, Turk, Killarney; Glouin Caragh; Mount Eagle, Kerry.

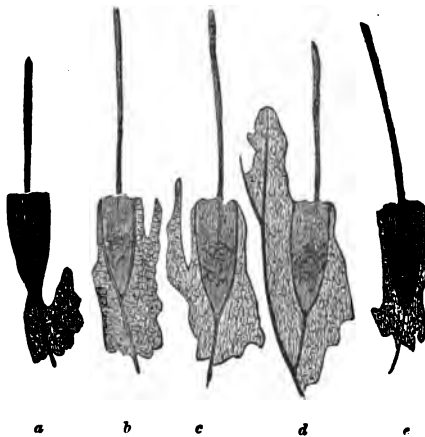
"Mr. Andrews further observes, that 'the striking character of the Glouin Caragh plant is the amazing length of the receptacles, which, in the growing state of the plant, turn up from the involucre in a curved manner [see figure *a* on the preceding page] showing a most bristly appearance over the entire frond: all the fronds presented the lanceolate character, the lower pinnæ being distant and short; the ultimate segments of all the pinnæ are serrated, the pinnules being decurrent and running to a point; the entire length of the frond was sixteen inches, and from the base of the lowest pinnæ to the apex of the frond eleven inches.'

"In opposition to the views expressed by these three eminent botanists, I will cite that of Mr. Moore, who says, 'I think the *new* Trichomanes to be nothing more than the old plant fully developed, and more attenuated in all its parts, and that this is caused by the dark warm habitat in which it grew. In order to prove whether the old plant could not be altered by being subjected to a different kind of treatment, I had a good healthy pot placed under the stage of a green-house, where it got very little light, and over the glass a piece of old carpet was thrown which was kept constantly saturated with water, so that I considered the plant placed nearly in a similar position to that in which the new plant was found. I soon found that the fronds might be lengthened to an almost incredible extent, and that they became more simple in their appearance; in both these respects well agreeing with the plant discovered by Mr. Andrews.' No fruit has been produced, so that it remains a question whether the *receptacle* also can be elongated by this treatment. Mr. Ogilby, of Dublin, whose name I have before mentioned as a kind contributor of specimens, seems quite to coincide in Mr. Moore's view of the case.

"In accordance with the views previously urged, when describing *Cystopteris fragilis* and *Lastrea multiflora*, I have endeavoured to compare the most mature and perfect fronds from each locality, and the result appears to be 1st, — that the specimens from Glouin Caragh are far more mature and fruitful than those from Killarney: it is a rare thing to obtain specimens from the latter station in a thoroughly mature state; I think I may say that not one frond in fifty exhibits involucre, and not one in many hundreds attains the perfect development and fruitfulness displayed by the Glouin Caragh plant: but 2ndly — I find that the most mature of the Killarney specimens most recede from the Glouin Caragh specimens, a circumstance rather opposed to the supposition that the two are identical, since in general we find ferns developing their specific differences more strikingly as they approach perfection. 3rdly — The length of receptacle is another test of perfection: the Killarney plant, grown at Killarney, has a receptacle of very different length; in the most perfect specimens it is at least four times as long as the involucre, in the least perfect it scarcely protrudes beyond the involucre, and under cultivation it is seldom to be seen at all, thus evidently proclaiming that its length in some measure depends on health, maturity, and a congenial situation. Willdenow, in the passage cited, describes the receptacle as four times the length of the involucre; and I cannot assert either that its frequent departure from this character at Killarney proves anything more than that such departure is a testimony of imperfection, or its attaining this character at Glouin Caragh is to be attributed to any other causes than congenial situation. The form of frond may be capable, as Mr. Moore asserts, of great elongation, but there is no evidence that the rela-

tive length of the pinnæ is also altered: it appears to be a fundamental character of a deltoid frond, that the lowest pair of pinnæ shall be longer than the second pair, the second longer than the third, and so on; and, as far as I am aware, this character is constant in cultivation; at least I can safely assert that it is so in *Asplenium Adiantum-nigrum*, *Lastrea recurva*, &c. The apex of the frond is often lengthened very remarkably, but the lower pinnæ almost invariably partake of a similar elongation. In lanceolate fronds, the lowest pair of pinnæ are usually shorter than the second pair, the second shorter than the third; and this character in *Asplenium lanceolatum*, *Lastrea multiflora* &c., remains unaltered under any condition. Now the two *Trichomanes*, although less decidedly deltoid or lanceolate than the ferns I have cited, follow the same law, each preserving respectively its deltoid or lanceolate tendency under cultivation.

Again, there is a decided difference, as far as I can learn from my limited materials, in the involucre of the two plants. In the Killarney plant the involucre stands out distinctly from the membranous frond, and appears almost stalked, while in all my specimens of the Glouin Caragh plant it is more or less united with the frond by a continuous margin or wing; this will perhaps become more evident from an inspection of the figures in the margin, which fairly express the differences observable in my specimens from each station. Supposing that the deltoid and lanceolate fronds are constant in each plant, and that the exerted and partially embedded involucre are also constant, I think there can be little doubt that Mr. Andrews's plant claims the rank of a species; the extraordinary length of the receptacle, the less divided state of frond, and the less tomentose rhizoma, so ably pointed out by the Irish botanists, will furnish additional support of such a decision, although I scarcely like to take either of these as a specific character. Still I hesitate to add a species to our British Ferns unless possessed of more ample means for forming an opinion; and I give to the plant the name of *Andrewsii* as a *variety only*, respectfully begging of subsequent describers, that should their views coincide with mine, they will still allow the plant to bear the name of a naturalists to whose ardour and intelligence the science of Botany is under so many and such important obligations."—p. 315.



a. Involucre of the Killarney plant in its usual state.
b—e, Different states of involucre of Glouin Caragh plant.

We are desirous of recording our opinion that *Trichomanes Andrewsii* will hereafter rank as a distinct species; its discrepancies with *speciosum* are fully as great as those of *Hymenophyllum tunbridgense* and *H. unilaterale*; and there seems a general disposition to consider these permanently distinct.

Concerning the remaining tribes we have little to add. The de-

scription and figure of the young frond of *Botrychium Lunaria*, a year prior to its appearance above ground, are new and interesting. The monograph of *Lycopodiaceæ* is already before the readers of 'The Phytologist,' and to this there is no material addition, except a list of habitats; and under *Isoetes lacustris* an interesting detail of its mode of increase, which accounts very clearly for the crowded and elongated state in which it is frequently found. The reprints comprised in the Appendix will be acceptable to botanists.

It may perhaps be expected that we should offer a more decided opinion as to the merits of this work; but let those who think so, recollect the identity of the *author* of the 'History' and the *proprietor* of 'The Phytologist,' and we think it will be allowed that a mere commentary on the contents, and an exhibition of a very few of the illustrations—six out of one hundred and forty,—is all that decency allows, although not less than our position as faithful chroniclers seems to require.

ART. CCXIV.—*Further remarks on Botanical Classification.*
By PHILIP B. AYRES, Esq., M.D.

Thame, April 18, 1844.

SIR,

WHEN I penned my remarks on Mr. Edmonston's views, I certainly did not expect that they would have called forth as his champion a gentleman occupying so high a station in the scientific world as the Vice-President of the Linnean Society. Notwithstanding the great respect I feel for one so distinguished, and fully aware as I am, of the difficulty a raw recruit, like myself, must encounter in opposing a veteran, I must crave your permission to offer a few notes upon the notes of Mr. Forster; and this I shall do with all proper courtesy and deference. I find his notes to consist:—

1. Of remarks upon the terms *artificial* and *natural*.
2. On the meaning of the term *species*.
3. On some innovations of fashionable modern and juvenile botanists.

In the first place, with respect to the artificial and natural systems, I find Mr. Forster affirming that the term natural is equally applicable to the systems of Linnæus, of Jussieu, of Decandolle, &c.; but that the system of Linnæus, preeminently the artificial system, does not show the evident affinity so clearly as the others.

I have been accustomed to consider a system as more natural in proportion as it brings together those beings or substances that bear the greatest resemblance to each other in all their parts, and *vice versa*, as less natural in proportion as these "evident affinities" are disregarded. Whether I am right in my opinion is another question; but until the above statement is proved to be incorrect, I shall feel myself bound to adhere to it. Tried by the above rule, it is easily shown that the modern so-called natural system deserves that name, while the term "artificial" is justly applied to that of Linnæus, in which so many incongruous forms are united under the same order and class.

Secondly. — I have always thought that "species" was understood by naturalists *as a collective term, including all individuals possessing similar characters, and not applicable to any one individual*. Thus it is improper, in my opinion, to say that a plant, for example, of *Mentha viridis*, is a species; but rather, that it belongs to the species *viridis* of the genus *Mentha*, the species being a collective term, under which any number of individuals may be ranged. If each individual be a species, it is evident that there are as many species as individuals, which is absurd. The characters of individuals cannot be the individuals themselves. Moreover, *species* being a collective term, cannot exist in external Nature, but becomes an intellectual conception or idea existing in the mind of man alone; in short, as I have called it in my former communication, an induction. I shall now endeavour to show proofs of this opinion.

The term species, it must be remembered, is applicable to all natural substances and beings; to animals, to plants, to minerals. It signifies, according to its etymology, a sort or kind. How then does the mind of man arrive at this term? Obviously the only method is by comparison and abstraction. Man sees around him a vast multitude of substances and beings; prompted by his natural curiosity, he examines these objects, and finds that certain individuals agree or disagree in their form, their sensible qualities and habits. Placing before his mind a number of individuals, he finds them to agree in all their more important characters, giving to them a kind of identity: and he thence draws the deduction or induction that they belong to the same kind or species. It follows that the *species* is neither an individual nor any number of individuals, but a collective term including all individuals that have existed, do, or may exist, possessing similar characters; and hence the species is entirely ideal. Proceeding in the same manner by comparison and abstraction, he arrives at the higher

inductions of genus, order, class, &c. Having thus formed an intellectual ladder, he can ascend or descend by it at pleasure; he can follow the original ascending series, or, starting from the higher divisions, he can descend to the individual. The former is done in the construction of species, genera, classes &c.; the latter, when possessing these deductions, he wishes to arrive at particulars. The one is the ascent from particular to general; the other, the descent from the general to the particular.

Thus species, like genus, order and class, being shown to be a purely intellectual conception capable of being expressed by certain characters, it follows that all substances possessing these characters will necessarily belong to, or be included under the *species*.

As the term species is applicable to minerals, to which the power of genesis, in the usual sense of the word, is denied, it follows that the power of generating their like is an accidental, though important, adjunct to the idea of species when applied to organized beings. The power of genesis is then one only of the characters of the species. Thus we are again reduced to the creation of individual plants and animals, having as one of their most important characters the power of reproducing similar individuals.

The foregoing exposition of my views relating to species will explain why I consider that the evidence of varieties is opposed to Mr. Edmonston's opinions, since varieties will be equally intellectual conceptions, differing simply from the primary idea of the species in some unimportant character; — a minor induction. Varieties are of two kinds; those trivial variations that give the peculiar character to the individual, and those more important variations which are constantly found in a certain number of individuals, and are often propagated for several generations. I shall be glad to be informed how the latter are to be distinguished from species, according to the views of my opponents! The very difficulty of distinguishing varieties from species; the alternate exaltation of varieties into species and depression of former species to varieties which abound in all works on systematic Botany, show that they are inductions from a smaller number of characters.

With reference to the quotation from Dr. Lindley's 'Key to Botany,' I have to apologise for the oversight I have inadvertently made, in including the term species among the groups to which he refers in the passage quoted by Mr. Edmonston; but if the previous argument be correct, the lapsus will be of little consequence, since the quotation will be as applicable to species as to any other group.

Thirdly. — I am sorry to see the term “*fashionable*” so constantly applied by the advocates of the Linnæan school to those who follow what they consider a better system, as a term of reproach and ridicule. Fashion implies change, and is used in that sense by the opponents of the natural system; referring, I suppose, to the changes that system has undergone: but surely it must be allowed that progression towards perfection is better than to remain in the same immoveable unimprovable state. The method of Linnæus itself was a progressive change on the older and more imperfect systems that preceded it, as, I think, the system of Jussieu, DeCandolle &c., is a progression from the more imperfect system of Linnæus. Let us expect, then, that in proportion as our knowledge of Nature increases, changes of system must follow as necessary and beneficial results.

As to Nature’s working by “carpenter’s rule,” I can only remark that did not Nature work by rule, the earth would be a chaotic mass; those nice dependencies of beings and substances on each other, and the *order* which even a superficial study of natural objects positively obtrudes upon us, would neither be discoverable, nor indeed would exist. Any one who observes the variations by which allied plants placed under different species approach each other, will see that there must be a type or model on which the species must be based; the general derived from the individual.

If my interpretation of the term species be correct, it will follow that man does make species, as well as genera and other groups, and consequently that the expression “exalting varieties to the rank of species” &c., may be correctly used.

Whoever will compare the various catalogues of British plants, for example, will see that what were formerly termed species are either divided into two or more modern species, or, on the other hand, depressed to the rank of varieties! And how are these divisions, these exaltations and depressions, brought about? By observation of their reproduction by seed? *No*: but by the variation of the value of different characters in the minds of different botanists! What is the value of the term species if it be liable to such mutations?

I have now, Sir, expressed, as clearly as I am able, my notions on the subjects contained in the letters of Mr. Edmonston and Mr. Forster. I shall hail with pleasure the *proof* that they are incorrect, but at the same time I must express my gratification that while Mr. Forster has attacked my opinions on a *few* minor points, he has left untouched the great question of the comparative beauty and utility of the two rival systems.

I hope, Sir, that these observations will be considered, by yourself and readers, as worthy of being "called a reply" to the animadversions of Mr. Forster. And beg to subscribe myself,

Your obedient Servant,

PH. B. AYRES, M.D.

To the Editor of 'The Phytologist.'

ART. CCXV.—*County Lists of the British Ferns and their Allies.*
Compiled by EDWARD NEWMAN.

(Continued from p. 514).

SOMERSETSHIRE.

†*Adiantum Capillus-Veneris*. Said to grow in the mouth of an old well at Clevedon, *Leo. H. Grindon*.

Lomaria spicant. (Dr. Southby), Leigh woods, Bristol (G. Rogers), *H. C. Watson*; Embrough, Wells, but not general, *T. B. Flower*; not uncommon near Bristol, *G. H. K. Thwaites*.

Pteris aquilina. (Dr. Southby), *H. C. Watson*; frequent on heaths and barren places, *T. B. Flower*; common near Bath, *C. C. Babington*; common near Bristol, *G. H. K. Thwaites*.

Allosorus crispus. About a mile from Simmon's bath, very sparingly, on a stone wall, in company with *Polytrichum alpinum*, *N. Ward, jun.*

Polypodium vulgare. (Dr. Southby), *H. C. Watson*; frequent in the county, *T. B. Flower*, *C. C. Babington*; very common near Bristol, *G. H. K. Thwaites*. Var. β . *serratum*. With the above, *T. B. Flower*; Cheddar, the variety figured at p. 22 of Newman's Ferns, (W. C. Trevelyan), *H. C. Watson*; exceedingly fine on old trees in Leigh wood &c., *Leo. H. Grindon*.

Polypodium Dryopteris. Rocky places on the Mendip hills, Bristol and Bath, *T. B. Flower*; Widcombe house, Bath, now lost? (Mr. Sole), *C. C. Babington*.

Polypodium calcareum. Cheddar cliffs, *John Harris, jun.*, (W. C. Trevelyan), *H. C. Watson*; Bath, Leigh woods, Bristol, Cheddar cliffs and Mendip hills, *T. B. Flower*; Friary woods, Hinton abbey (T. B. Flower), *C. C. Babington*.

Cystopteris fragilis. Cheddar cliffs, *E. Lees*, (Dr. Southby, W. H. Trevelyan), *H. C. Watson*; Leigh woods near Bristol (G. H. K. Thwaites to Bot. Soc. Lond.) *H. C. Watson*; Bath, Embrough, Wells,

Cheddar, Clevedon, Brockley coombe, and frequent throughout the county, *T. B. Flower*; Widcombe hill (Dr. H. Gibbs), quarries in Hampton down, *C. C. Babington*; abundant on Dundry down, and in small quantities in Nightingale valley, Leigh woods, *G. H. K. Thwaites*; on the oolite at Dundry; Mendip hills above Burrington; Leigh woods, near the foot of Nightingale valley, very luxuriant, *Leo. H. Grindon*. *C. regia*. On the top of the Mendip hills (Sole's M.S. Flora of Somersetshire), Blackstone, *Turner and Dillwyn*.

Polystichum aculeatum. (Dr. Southby), *H. C. Watson*; generally distributed throughout the county in woods and hedge-banks, *T. B. Flower*; a variety, perhaps *F. Lonchitidi affinis* of Ray, among the Cheddar cliffs, *E. Lees*; Kelston, Claverton, Friary wood (*T. B. Flower*), Langridge (Dr. Alexander), *C. C. Babington*; abundant near Bristol, *G. H. K. Thwaites*.

Polystichum angulare. With the above, *T. B. Flower*; Beechen cliff and Landsdown, near Bath; Hinton abbey, (*T. B. Flower*), *C. C. Babington*; Long Ashton, *Leo. H. Grindon*.

Polystichum lobatum. (Dr. Southby), *H. C. Watson*; Bath, Bristol, and Mendip hills, and throughout the county, *T. B. Flower*; on the oolite at Dundry, *Leo. H. Grindon*; Prior park, Midford castle (*T. B. Flower*), *C. C. Babington*; abundant on Dundry down, and sparingly in Leigh woods, *G. H. K. Thwaites*; rocks at Burwell's wood, facing the hot wells (Mr. Sole), *Turner and Dillwyn*.

Lastrea Oreopteris. (Dr. Southby), *H. C. Watson*; Leigh wood, Bristol, frequent, and on the Mendip hills, *T. B. Flower*; Leigh woods, *G. H. K. Thwaites*.

Lastrea Thelypteris. (Dr. Southby), *H. C. Watson*; Burtle, Widmore and Glastonbury moors, frequent, and no doubt to be met with elsewhere in the county, *T. B. Flower*.

Lastrea Filix-mas. (Dr. Southby), *H. C. Watson*; common, *Leo. H. Grindon*; throughout the county: the var. δ *serrata*, is recorded as having been found at Nettlecombe, by Mr. W. C. Trevelyan, *T. B. Flower*; common near Bath, *C. C. Babington*; common near Bristol, *G. H. K. Thwaites*.

Lastrea dilatata. Bath; Leigh woods, Bristol; Mendip hills, Embrough, Wells, Axbridge, and generally throughout the county, *T. B. Flower*; Friary wood, Warley and Claverton (*T. B. Flower*), Hampton woods, *C. C. Babington*; common near Bristol, *G. H. K. Thwaites*; St. Ann's wood, *Leo. H. Grindon*.

Lastrea spinulosa. With the above, *T. B. Flower*; on the oolite at Dundry, *Leo. H. Grindon*.

Athyrium Filix-femina. (Dr. Southby), *H. C. Watson*; Bath; Leigh woods, Bristol; Embrough, Wells, Axbridge, Clevedon, Brockley coombe, and throughout the county, with the varieties β . and γ . *T. B. Flower*; Friary woods, Hinton (*T. B. Flower*), Claverton, *C. C. Babington*; abundant in the vicinity of Bristol, *G. H. K. Thwaites*.

Athyrium irriguum. Not unfrequent upon hill-slopes, *G. H. K. Thwaites*.

Asplenium Adiantum-nigrum. (Dr. Southby), *H. C. Watson*; Bath, Bristol, Wells, Glastonbury, Cheddar rocks, upon the Mendip hills, Weston-super-Mare, Steep Holmes in the Severn, and very generally distributed throughout the county on walls, rocks and hedge-banks, *T. B. Flower*; Kelston, S. Stoke, Widcombe, Colerne, *C. C. Babington*; very abundant in the neighbourhood of Bristol, *G. H. K. Thwaites*.

Asplenium marinum. Clevedon, Weston-super-Mare, upon rocks near the sea but not general, *T. B. Flower*; on rocks between Portshhead and Clevedon, *G. H. K. Thwaites*; in a cave on a rocky beach near Clevedon, *Leo. H. Grindon*.

Asplenium Ruta-muraria. (Dr. Southby), *H. C. Watson*; distributed throughout the county, *T. B. Flower*; common near Bath, *C. C. Babington*; abundant on rocks and walls in the vicinity of Bristol, *G. H. K. Thwaites*; old walls at Ashton, and in Leigh woods, *Leo. H. Grindon*.

Asplenium Trichomanes. (Dr. Southby), *H. C. Watson*; with the above, *T. B. Flower*; common near Bath, *C. C. Babington*; abundant in the vicinity of Bristol, *G. H. K. Thwaites*; old walls at Ashton, and in Leigh woods, *Leo. H. Grindon*.

Asplenium septentrionale. Rocks on the south side of Blackford hill, plentifully, Mr. Brown, *Turner and Dillwyn*; in abundance on stone walls near Glenthorne, about six miles from the boundary of Devon, *N. Ward, jun.*; Glenthorne, (W. S. Hore to S. P. Woodward), *H. C. Watson*.

Scolopendrium vulgare. (Dr. Southby), *H. C. Watson*; frequent throughout the county, *T. B. Flower*; common near Bath, *C. C. Babington*; abundant near Bristol, *G. H. K. Thwaites*; hedge-banks and walls, very fine; sea-bank at Clevedon, *Leo. H. Grindon*. Var. β . *crispum*. Generally distributed, but perhaps not quite so frequent as the above, *T. B. Flower*.

Ceterach officinarum. Cheddar cliffs; on the rocks of carboniferous limestone at Brean down, *E. Lees*; (Dr. Southby); St. Vincent's rocks (*G. H. K. Thwaites* to Bot. Soc. Lond.), *H. C. Watson*, *John*

Harris, jun., C. C. Babington; commonly distributed throughout the county, on rocks and old walls, *T. B. Flower*; abundant on rocks in Leigh woods, and very common on walls in the vicinity of Bristol, *G. H. K. Thwaites*; Leigh woods, old walls about Ashton, Tickenham and Clevedon, exceedingly luxuriant, *Leo. H. Grindon*.

Hymenophyllum Tunbridgensis. In a shady lane near Shipton-Mallet, Sole's M.S. Flora of the county of Somerset, *T. B. Flower*.

Osmunda regalis. (Dr. Southby), *H. C. Watson*; Glastonbury, Wedmore and Burtle moors; it has also been mentioned as growing in Leigh woods, Bristol, but I have not been able to detect it, and the situation does not appear favourable for its growth, *T. B. Flower*; Glastonbury and Burtle turf-moors Mr. Sole, *Turner and Dillwyn*.

Botrychium Lunaria. Bath, Shirehampton near Bristol, but sparingly, *T. B. Flower*; field between the lane leading from Bath to Claverton and the farm-house on the down (Dr. Alexander), *C. C. Babington*; commons and waste lands in divers parts of the county (Mr. Sole), *Turner and Dillwyn*.

Ophioglossum vulgatum. (Dr. Southby), *H. C. Watson*; frequent throughout the county in boggy ground, *T. B. Flower*; near Bath, *C. C. Babington*.

Lycopodium clavatum. (Dr. Southby), on Exmoor near Linton, *H. C. Watson*; Clevedon, in one locality, *Leo. H. Grindon*.

Lycopodium alpinum. (Dr. Southby), *H. C. Watson*.

Lycopodium Selago. (Dr. Southby), *H. C. Watson*.

Pilularia globulifera. Wet places on Black and Maiden downs, (Mr. Sole), *Turner and Dillwyn*.

Equisetum hyemale. Canal bank, Bath (Dr. Davis), *C. C. Babington*.

Equisetum arvense. (Dr. Southby), *H. C. Watson*; Bath, Bristol, and in fact variously distributed, more or less, *T. B. Flower*; in the Canal and Brass-knocker woods near Bath, *C. C. Babington*. A variety of this occurs with the branches very generally compound, in Marshfield lane, near Bath, *C. C. Babington, T. B. Flower*.

Equisetum Telmateia. (Dr. Southby), *H. C. Watson*; generally distributed more or less, *T. B. Flower*; near Bath, *C. C. Babington*. A variety of this also occurs, with the branches compound, in company with the above, *T. B. Flower*.

Equisetum palustre. (Dr. Southby), *H. C. Watson*; not very generally distributed, *T. B. Flower, C. C. Babington*. A variety of this occurs in Marshfield lane, near Bath, with each simple branch bearing a small catkin, *T. B. Flower*.

Equisetum fluviatile. (Dr. Southby), *H. C. Watson*. Bath, Em-

brough ponds, but by no means general, as far as I have observed, *T. B. Flower*.

Equisetum sylvaticum. (Dr. Southby), *H. C. Watson*; not very generally distributed, *T. B. Flower*: Batheaston (Miss Lonsdale), *C. C. Babington*.

EDWARD NEWMAN.

(To be continued).

ART. CCXVI.—*Varieties*.

472. *List of Agarics found near Hitchin*. I send you the following list of Agarics found within five miles of Hitchin, in Hertfordshire, thinking it may be interesting to some of your readers, and invite some interesting correspondence on the subject, as well as perhaps induce some of your correspondents to furnish similar lists from their own neighbourhood. The nomenclature is that of the 'British Flora.' Coloured drawings from fresh specimens have been taken of all except those marked with an asterisk. I hope to furnish a more extended list of the other genera of this greatly diversified order at a future time.

<i>Agaricus phalloides</i>	<i>Agaricus fumosus</i>	<i>Agaricus epiphyllus</i>
* <i>vaginatus</i>	* <i>candicans</i>	Hudsoni
<i>muscarius</i>	* <i>dealbatus</i>	alcalinus
<i>procerus</i>	<i>pratensis</i>	<i>galericulatus</i>
<i>excoriatus</i>	<i>virginus</i>	<i>polygrammus</i>
<i>cristatus</i>	<i>psittacinus</i>	<i>strobilinus</i>
<i>granulosus</i>	<i>conicus</i>	<i>purus</i>
<i>melleus</i>	<i>coccineus</i>	<i>lacteus</i>
<i>cerasinus</i>	<i>laccatus</i>	<i>stylobatus</i>
<i>fulvus</i>	<i>sulphureus</i>	<i>tenerrimus</i>
<i>rutilans</i>	<i>radicatus</i>	<i>epipterygius</i>
<i>multiformis</i>	<i>velutipes</i>	<i>camptophyllus</i>
<i>personatus</i>	<i>fusipes</i>	<i>corticola</i>
<i>emeticus</i>	<i>butyraceus</i>	<i>Fibula</i>
<i>cilicioides</i>	* <i>dryophyllus</i>	<i>umbelliferus</i>
<i>uvidus</i>	<i>peronatus</i>	<i>Campanella</i> , <i>β. badi-</i>
<i>hysginus</i>	<i>oreades</i>	<i>fragrans</i> [pus
<i>deliciosus</i>	<i>porreus</i>	<i>cyathiformis</i>
* <i>quietus</i>	<i>esculentus</i>	<i>stypticus</i>
<i>subdulcis</i>	<i>tenacellus</i>	<i>pascuus</i>
<i>theiogalus</i>	<i>conigerus</i>	<i>cinnamomeus</i>
* <i>rufus</i>	<i>Clavus</i>	<i>aureus</i>
<i>infundibuliformis</i>	<i>ramealis</i>	<i>squarrosus</i>
<i>giganteus</i>	<i>androsaceus</i>	<i>mutabilis</i>
<i>nebularis</i>	* <i>foetidus</i>	<i>collinitus</i>

* <i>Agaricus elatus</i>	<i>Agaricus Georgii</i>	<i>Agaricus disseminatus</i>
fastibilis	* campestris	comatus
flavidus	præcox	micaceus
flocculosus	semiglobatus	cinereus
* rimosus	ærginosus	niveus
geophyllus	lachrymabundus	plicatilis
tener	lateritius	* ephemerus
melinoides	fascicularis	glutinosus
involutus	stipatus	rutilus
variabilis	semiovatus	

Wm. Dawson ; Hitchin, February 23, 1844.

473. *Note on the Meetings of the Botanical Society of Edinburgh.* The Edinburgh Botanical Society does continue its meetings, and has had a constant supply of valuable papers. The 3rd part of the Transactions is now printing at Edinburgh, and will conclude the first volume. The commencement of Vol. 2 is also in the press, and will be published in a few months. It will contain papers fully equal to those contained in the former parts. — *C. C. Babington ; St. John's Coll. Cambridge, March 5, 1844.*

[An apology is due to Mr. Babington for the omission of the above note from our April No.; the omission was purely accidental, the letter from which it is an extract having been mislaid. The note refers to an observation on the wrapper of the March No., and is satisfactory inasmuch as it shows that the meetings of the Edinburgh Society are still held; but it does not explain why we have not been favoured with the reports of proceedings at any of the meetings held during the present session.—*Ed.*]

474. *A Word on Worcestershire Botany.* I observe reported in the February No. (Phytol. 875), a notice of a botanical excursion by Mr. S. P. Woodward, in Warwickshire, Worcestershire, &c., which seems to call for a few remarks. I have nothing to say against the Irish observations, where, sensibly enough, Mr. W. says he “took Mr. Newman’s ‘Irish Notes’ in his hand,” and had Dr. Taylor as a guide. Now if he had acted on the same principle throughout his journey, surely his botanical notes would not have been so meager respecting Worcestershire, more especially as he was near good sporting-covers, *had he but known it.* If a botanist, professedly travelling for scientific purposes, will make no enquiries, and take no note as to what has been previously done in the district he is reviewing, how can he expect that his nose only will guide him to the most favourable localities? I mention this as a hint to all collecting botanists, and not only to Mr. W. This gentleman states that he spent a week in Worcestershire, but it “afforded him very little scope for botanizing, the interest of the country being chiefly geological.” He mentions being at Kidderminster, where the returns were *nil*; but why not have pro-

gressed to Bewdley forest, only five or six miles from thence, where the curious *Pyrus domestica* grows, and where *Geranium sylvaticum* and *Epipactis ensifolia* occur in profusion? Here also he might have met with *Rubus suberectus* and *R. saxatilis*, to say nothing of many ferns. The Clent Hills between Kidderminster and Stourbridge, Mr. W. says "have *no rills or ponds*," and "are *entirely* destitute of ferns." Surely this is much too sweeping an observation. I have not been very lately to the Clent hills, so cannot say whether or not every fern has now disappeared; but I happen to have by me a written note, made on the spot, as to the existence of *water* there: and I would not mind undertaking to produce at least half a dozen species of ferns from the same vicinity, if the onus were laid upon me to do so. My note says,—"The Clent hills consist of several green undulating eminences, now all enclosed, stretching from N.E. by N. to S.E. by S., insulated from each other by longitudinal valleys winding from west to east. The two principal hills are Clent proper and Walton, the latter of which, being the highest, I found by barometrical observation to be 875 feet in altitude. The principal valley is that between Clent and Walton hills. *A stream gushes along it*, passing out to the west near Clent church, and finally emptying itself into the Stour." But oddly enough, if *my* testimony is insufficient, the 'Saxon Chronicle' tells us that at "Cowdale in Clent," a *spring of water* gushed out of the ground at the spot where Prince Kenelm, only son of Kenulph, King of Mercia, was basely murdered in 819, at the instigation of his villanous sister Quendrida, whose "ugly mug," with horrible grinning teeth, yet appears on the wall of St. Kenelm's chapel, a short distance eastward of Clent hill. *A spring of water actually now arises* on the east side of this chapel, forming a small stream that descends into a woody dingle, where I recollect observing in profusion *Adoxa moschatellina* and *Chrysosplenium alternifolium*, so often companions of each other. But not to forget St. Kenelm and the miraculous spring of water, so strangely lost sight of by Mr. W. One might have rested satisfied that the spring now rising in St. Kenelm's chapel-yard, was the identical holy spring of the Saxon Chronicle; but fortunately for our present purpose, we get another draught of cold water by the aid of Mr. Scott's 'History of Stourbridge,' who, at p. 292, tells us that at the distance of less than a mile southward of the chapel, "a most beautiful chrystal fountain arises," which, *he* kindly suggests, is the "real original" miraculous fountain owing its rise to poor Prince Kenelm's murder! However this may be, I trust I have obtained a trifling sprinkling at least for the arid

Clent hills, which future botanical rambles will do well to avail themselves of. Mr. W. mentions the Rubery-hill, "flanking the Bromsgrove Lickey;" but if he had stepped on two miles farther, to the Bromsgrove Lickey itself, he might have perceived one of the most interesting localities for Worcestershire plants, and almost the only spot in the county whose Botany has anything of a subalpine character — gloomy hills black to their very summits with bushy plants of *Calluna vulgaris*, interspersed with *Erica cinerea* and *Tetralix*, woods filled to repletion with *Vaccinium Myrtillus*, and bogs containing *Narthecium ossifragum*, *Vaccinium Oxycoccus*, *Melica cærulea* and the *Eriophori*. *Rubus hirtus* and *affinis* also form bushes upon the summit of the Beacon-hill, and *Juncus squarrosus* is abundant, while most of these plants are absent from the Malvern range. There is surely no want of water here, and *Lastræa dilatata* grows most magnificently in the damp ravines, with a bilobated variety of *Grammitis Ceterach*, *Athyrium Filix-femina*, and other ferns. I could easily mention several other favourable boggy localities near Kidderminster and Stourport, where various *Carices* and rare plants grow. But I have no wish to repress the energies of any enquirer, and only think it right to hint to young botanists, that due enquiry should be first made before it is too confidently set down that ferns and water are entirely absent from any ranges of hills, though at the time perhaps both may be within a stone's throw of the observer, had his local knowledge enabled him to reach them.—*Edwin Lees; Powick, Worcestershire, April 4, 1844.*

475. *Note on some localities in Mr. W. Gardiner's List*, (Phytol. 915). In the last number of 'The Phytologist' Mr. Gardiner of Dundee, a very zealous and enthusiastic botanist, gives some localities for rare Scotch plants which he collected in 1843. Among these he notices what he calls *new* stations for *Lychnis viscaria* and *Carex rariflora*. The localities however have been known for some time. I gathered the former in Craighall woods in August, 1829, and gave specimens to Dr. Graham and other botanists in Edinburgh. In another part of the same woods, I picked *Convallaria verticillata* and *Neottia Nidus-avis*. *Carex rariflora* was seen by Dr. Greville, Mr. Brand and myself, in a bog above Caness, in August, 1837. — Along the sides of the stream running into Caness, we gathered at the same time profusion of *Phleum alpinum*, *Alopecurus alpinus* and *Carex aquatilis*. I think the station was noticed in Dr. Greville's report of the excursion, read before the Botanical Society of Edinburgh; at all events, specimens were distributed from this locality.

I have no doubt however that Mr. Gardiner gathered the plants in these localities, without any knowledge of what had been done by others, and he deserves credit for the careful manner in which he has examined our alpine Flora. The other phanerogamous plants mentioned in Mr. G.'s list were picked in stations well known to all those who have botanized in the rich districts of Clova and Glen Isla, more especially to such as have accompanied Prof. Graham in his delightful excursions. A notice of most of them will be seen in the reports published by Dr. Graham in the 'Edinburgh Philosophical Journal.' I am glad to see that Mr. Gardiner found *Alopecurus alpinus* in profusion in the old station near Loch Dharval.—*J. H. Balfour; Glasgow, April 9, 1844.*

476. *Corrections of some errors in Mr. Gardiner's List of Plants.* My friend Professor Balfour has pointed out to me my mistake in supposing the stations for *Lychnis viscaria* and *Carex rariflora* (Phytol. 915-16) to be *new*, and I therefore gladly embrace the earliest opportunity of correcting it. I was perfectly unaware of these stations being previously known, and shall always be exceedingly thankful for any such corrections. For *Caulothen*, *passim*, read *Canlochen*. P. 917, line 6, for *Didymodon inclinatus Sm.* read *Su.*; line 13, for *Carlöwia*, read *Carlöwie*. The specimen supposed to be *Cetraria juniperina* has turned out to be only a young state of *Parmelia caperata*. *Wm. Gardiner; Dundee, April, 1844.*

477. *The Sidlaw-hills.* In an excursion to the Sidlaw-hills the other day, I had the pleasure of gathering *Buxbaumia aphylla* for about the tenth time; also *Grimmia Doniana*, *Diphyscium foliosum*, *Zygodon Mougeotia*, *Jungermannia cordifolia*, *Stereocaulon paschale*, and various other good things. *Empetrum nigrum* was in flower. *Id.*

478. *Remarks on the London List of British Plants.* In the new London Catalogue of British Plants, we have what has been long wanted, a list arranged according to the natural system, and gratitude is due from all botanists to the gentlemen who have been instrumental in publishing it. But how is it, that after having the nomenclature of our native plants completely revolutionized by the Edinburgh Society's list, which was to make our names agree with the continental ones, and set all errors to rights,—how is it, I ask, that we now have so curious a compromise between the new and the old nomenclatures? For while (to students of Smith and Hooker) *Equisetum fluviatile* appears under the name of *E. Telmateia*, *Carex cæspitosa* under that of *Goodenovii*, and *Orobis sylvaticus* of *Vicia Orobis*; *Arrhenatherum avenaceum*, on the other hand, returns to *Avena elatior*; the genus

Arundo is restored *vice* Calamagrostis and Phragmites; Alsine and Mœhringia degenerate into Arenaria; and sundry species of Erucastrum, Brassica and Diplotaxis revert to venerable Sinapis. These are only two or three instances taken at random to illustrate the "restoration." In the next place it appears that after all the wise ones were wrong in making species of Erythræa latifolia, pulchella and littoralis; of Carex irrigua; of Cochlearia anglica, danica and grœnlandica; of Senecio aquaticus, Habenaria chlorantha, sundry Atriplices, and a host of other plants, exalted only to be abased: for all these appear in the London Catalogue as varieties. Surely Carex Oederi is a good species! Surely Prunus insititia and domestica are something more than varieties of P. spinosa! And wherein have failed Stachys ambigua, Juncus conglomeratus and effusus, Avena alpina and planiculmis, that they should have no claim to numbers? Their claim to specific distinction seems to have been transferred to Fedia eriocarpa, Ranunculus circinatus &c., and Ajuga alpina is gone altogether. Would it not have been an improvement if a few synonymes had been introduced? Is Carex glauca of the list what we have latterly called C. recurva? Is Glyceria loliacea the plant which has at different times borne the generic names of Triticum and Sclerochloa? Without a good library we shall have to use plenty of guess-work in checking off our possessions. In the next place I am anxious to know how long a residence in this country is necessary before a plant becomes "sufficiently naturalized"? Mimulus luteus, Eranthis hiemalis, Lilium Martagon &c. are admitted, while Oxalis stricta, Erica carnea, Linaria purpurea &c. are excluded. The distinction between the two species of Impatiens is nicely discriminated; Noli-me-tangere is held to be truly wild because included in three Floras, fulva is introduced because not found in one of the twenty. Moreover, if the doubtfully native plants are to be marked at all, why not have made the list of them *perfect*, instead of leaving it incomplete, as avowed at p. 15? The result is, that we are very little wiser than before, as it is impossible to know which of the remainder "ought to have been" marked by the compilers. We are told that Viola odorata, Cheiranthus Cheiri, Crocus nudiflorus and the Vincas are not wild, but are professedly left in the dark as to Sisymbrium Irio, Chelidonium majus, and other introduced species. And when plants have been found only once or twice, or the *known* habitat is destroyed, is that a reason why they should afterwards be excluded from our lists, as is done in the London Catalogue with Eriophorum alpinum, Carex Davalliana, Potentilla alba, Bromus arvensis, &c.? On the same principle surely Con-

vallaria bifolia, Cypripedium Calceolus, Cyclamen hederifolium, &c. should have been expelled to the cover. If such a plan is persevered in, we shall never know what to consider as our really native though very rare plants.—*Joseph Sidebotham ; Manchester, April 19, 1844.*

[We gladly give insertion to the above remarks of Mr. Sidebotham, not because they are strictures on the extensive changes in nomenclature introduced into the Catalogue of the London Botanical Society, but because they refer to a subject of vital importance to the science of Botany. Every botanist must see how greatly to be desired is a uniform nomenclature; and to this desirable end should the efforts of all cultivators of the science be strenuously and unanimously directed. But this object can never be attained so long as those who ought to be considered authorities follow each their own path. Some of the changes complained of by Mr. Sidebotham, did not, however, originate with the London Botanical Society; their adoption of some of these changes we entirely approve of, nor can we help wishing that in some things they had gone a little further. For instance, the substitution of *Equisetum Telmateia* for *fluviatile* was proposed by Mr. Newman in our own pages (Phytol. 721), and this change has been adopted by the compilers of the London Catalogue; but why did they not restore the rejected name *fluviatile* to what we consider its legitimate position, as the appellation of the species still standing in the list as *E. limosum*? *Carex glauca* again is merely a restoration of a prior name to the plant named *recurva* by Hudson, and is adopted from Mr. Babington's Manual. Restorations of this nature, where the right of priority can be determined and is adhered to, we can never quarrel with. The compilers of the Edinburgh Catalogue thought it necessary to explain certain changes introduced into their list; perhaps the compilers of the London Catalogue may think it right to adopt the same course: if so, we shall be happy to admit their explanations into our pages. We shall also be glad to receive communications from our correspondents on the subject of nomenclature. By the way, we may take this opportunity of observing that we are convinced there is still room for a catalogue of British plants, with all their synonyms from the time of Linnæus, on the plan of Steudel's excellent 'Nomenclator,' which indeed should form the basis of the new British catalogue: this, if properly executed, would be a boon to our working botanists.—*Ed.*]

479. *Note on Primula elatior.* On the 17th instant I accompanied Mr. Borrer to Great Bardfield, Essex, to gather the true *Primula elatior*, where it was found by Mr. Henry Doubleday, (Phytol. 204).—On our way from the railway-station, Mr. Borrer fortunately espied it in a wet hilly pasture on the left of the road from Bishop's Stortford to Takeley, between the two-mile-stone and Thremhale Priory. We alighted of course, and entering the field, we observed it in greater abundance than in the meadow near the bridge over the Pant at Great Bardfield, although not quite so luxuriant. This plant has been frequently overlooked or confounded with *Primula vulgaris*, β . (*Smith*), Mr. Babington's β . *umbellata*, which is beautifully figured in Hooker's continuation of Curtis's 'Flora Londinensis' under the name of *Primula elatior*. Sir J. E. Smith was evidently acquainted with both,

and has well distinguished them; the accurate figure in 'English Botany' of *Primula elatior*, was communicated by the Rev. Mr. Hemsted, from whence does not appear. Mr. Hewett C. Watson (Phytol. 232) is decidedly right in saying that the Bardfield plant is the species intended to be figured in 'English Botany' (513), and is identical with Swiss and German specimens; I have a plant growing, and now in full flower, which was received from Belgium, exactly corresponding. It is probable that Ray did not distinguish the two plants, and that his "in sylvis & ad sepes non admodum infrequens" belongs to *P. vulgaris*, β ., and "interdum & in pascua descendit" to *P. elatior*. His synonyme "*Paralysis altera odorata flore pallido polyanthos*," — "*The Primrose Cowslip*," Parkinson's *Paradise*, 244, I think belongs to *P. elatior*. I suppose both are called Oxlips in most counties: in Essex I know they are indiscriminately cowslips, the *Primula veris* being invariably pagils.—*Edward Forster; Woodford, April 23, 1844.*

480. *Note on the Bardfield Oxlip.* Thinking it might interest you to see a few of the oxlips which I have raised from seed collected at Bardfield in 1842, I send some in a box. I am quite convinced it is a really distinct species, as out of at least five hundred that have flowered, there is no variation from the old plants, nothing like a primrose or cowslip amongst them. They all droop.—*Henry Doubleday; Epping, April 25, 1844.*

[True indeed to their parental type are the beautiful descendants of the Bardfield oxlip which we have just received from our kind correspondent Mr. H. Doubleday. We have long felt convinced that the Bardfield plants belong to a perfectly distinct species — the *Primula elatior* of Jacquin; and now, had a doubt remained, it must have been dispelled by the specimens just received, for which we tender our best thanks to Mr. Doubleday. It is not a little strange that this plant should be confined, as it apparently is, to a few localities in Essex.—*Ed.*]

481. *Note on Cerastium semidecandrum and tetrandrum.* Enclosed are some specimens of *Cerastium semidecandrum* and *tetrandrum*. They grow together plentifully on the drier parts of our denes, and equally abundantly. The tetrandrous plants may be readily distinguished at a passing glance among the patches in which they grow, by a more robust appearance and larger flowers; but as to the specific characters given in 'British Flora,' 3rd edition, I have not access to a later), I think you will find in *C. semidecandrum* the calyx more taper-pointed, the petals not more deeply cloven, but the calyx margins perhaps more membranaceous than in the tetrandrous plant. — *J. P. Priest; Great Yarmouth, April 11, 1844.*

482. *On the Ascent and Circulation of the Sap in Plants.* At a recent meeting of the Royal Society were read, "Some further Obser-

vations and Experiments illustrative of the Cause of the Ascent and continued Motion of the Sap,' in continuation of a paper presented November 1842, by G. Rainey, Esq. — The author here gives an account of some experiments which he has lately made, tending, in his opinion, to corroborate the opinions he advanced in his former paper; namely, that the ascending sap is situate in the intercellular and intervascular spaces of the plant, and that its passage into the cells is effected by the action of endosmose, which the intervening membranes whether living, or deprived of vitality, exert upon that fluid. He found that portions of many plants, such as *Anthriscus vulgaris* and the *Lapsana communis*, absorb a much larger quantity of fluid when they are immersed in pure water, than when similarly immersed in a solution of gum-arabic: and that, in the latter case, the remaining portion of the solution is of the same specific gravity as before any part has been absorbed by the plant. By a similar process the author conceives the fluid which is derived from the earth, and has passed into the intercellular spaces of the cotyledons, are imbibed by its cells by endosmose; while at the same time a fluid containing sugar is passing, by exosmose, out of these cells into the intercellular and intervascular tissue, and thence into the corresponding tissue of the peduncle and young stem; it there meets with, and is diluted by the water ascending in the same tissue from the roots, and the mixture is afterwards distributed over every part of the plant."—*Athenæum*, April 10, 1844.

ART. CCXVII.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF LONDON.

April 12, 1844. — John Reynolds, Esq., Treasurer, in the chair. Various donations were announced, including a very large collection of East Indian plants, presented by the Royal Horticultural Society of Cornwall. Mr. D. Moore, of the Dublin Botanic garden, presented numerous specimens of *Carex paradoxa* (*Willd.*), collected in Ireland. Mr. W. L. Notcutt presented many duplicates of *Statice rariflora* (*Dreger*), collected in Hants. Various other specimens were presented for the Society's herbarium, in illustration of the varieties recorded in the 'London Catalogue of British Plants.'

Read, 'A Synoptical View of the British Fruticose Rubi, arranged in groups, with explanatory remarks (Part 2)': by E. Lees, Esq., F.L.S. The paper was accompanied by drawings and specimens.—*G. E. D.*

THE PHYTOLOGIST.

No. XXXVII.

JUNE, MDCCCXLIV.

PRICE 1s.

ART. CCXVIII. — *Further Remarks on Botanical Classification.*

By THOMAS EDMONSTON, JUN., Esq.

Aberdeen, April, 1844.

SIR,

I beg to trouble you with a few remarks on Dr. Ayres's letter (*Phytol.* 885), replying to my former paper, (*Id.* 759).

Dr. A. seems, in the first instance, to have quite misunderstood my meaning in objecting to the abandonment of the Linnæan system; if he keeps in view my primary proposition, that an artificial scheme is necessary to the *beginner*, he will find that much of his reasoning is thrown away, and that not seldom he is arguing in parallel lines with myself. I never objected to the "natural" system as a *part of the study of Botany*, and my arguments were mainly intended to show how improper a system it is for a student. Bearing this in mind, I shall shortly examine the value of some of Dr. Ayres's vindications.

In the first place, I confess I can see little analogy between the Linnæan system and an "index," to which Dr. A. is pleased to liken it. By an index we ascertain indeed the name of any article we are wishing to find in a bulky encyclopædia or other book, but nothing more. Will Dr. Ayres say that after we have, by the aid of the Linnæan system, acquired the knowledge of the name of a plant, we still know nothing of that plant? Must we not first ascertain the number and position of its stamens, then the character of its calyx, corolla, fruit &c., next of its root, leaves, inflorescence, &c.; and all this before we can know the name? And from the first step, the ascertaining of its class, we are continuing to acquire information regarding the structure of the plant. The "natural" botanists wish to be in a great hurry, teaching the student all about the plant at the outset, and making him learn at first what he would far better become acquainted with at a later stage of his progress; in short, in homely phrase, "putting the cart before the horse." If a Linnean botanist were to say to the student, "You must find out the number and position of the stamens and pistils of that plant, but do'nt stir a step further, as you reverence the memory of him of Upsala; all you have to do is to know that such a plant belongs to Pentandria, Monogynia, you have no

concern with anything else :”—then indeed “stale and unprofitable” would be the information gained ; but can we disconnect the knowing the class and order from knowing the genus and species ? The one is a means to the other, and is valueless by itself. The simple difference between the *modus operandi* of the two systems is this ; by the Linnæan you are conducted by easy stages to the knowledge of the species, by the other you are immediately, or nearly so, brought into contact with what should have been your last step.

Dr. Ayres seems to ground his defence of the natural system on a most extraordinary hypothesis, viz., the assumption that all the abstractions we term classes, orders, genera, &c., have as much a “local habitation and a name” as the abstraction we term species, and he doubtless thinks himself triumphant in naming them all “inductions from individuals ;” Dr. Ayres at the same time, however, makes mention of the particular point in which species differ from every other “induction,” namely, their “capability of propagating their like.” Is not *this* an essential difference from all other inductions ? Do genera, or classes, or orders, “propagate their like ?” What sort of a *hybrid* would the two abstractions Ranunculaceæ and Cruciferæ produce ? Yet if they are all alike inductions from a beginning, then they must all have analogous properties, and two genera, or two orders, must produce hybrids, and “propagate their like” in the same way as two species. It is obvious to every unprejudiced mind, that Nature *has* created individuals having certain common peculiarities which no other induction from individuals possesses, and to these we give the name of *species*. Where the line is drawn we cannot often tell, and wofully shall we find philology to fail us in endeavouring to thread the mysterious mazes of Nature’s labyrinth. We must be content to descend from the high pinnacle of metaphysics, and take the more homely guidance of experience and analogy, in viewing with our finite and imperfect vision the infinite and perfect works of the Eternal. But a more unfortunate line of argument could scarcely be pitched on for the feasibility of a natural system, than that which alleges that all our groupings have actually an existence in the scheme of Nature. It assumes that every plant has its proper niche, and that there is a regular gradation of affinity between the highest and the lowest forms of vegetable life. Now we are perhaps acquainted with two thirds of the plants on the globe, say three fourths, and in all probability not more are known to science. What a faint and indistinct glimmering of the *true* System of Nature must we have ! How many gaps to be filled up ! How many erroneous affinities to be corrected !

What a "combination of disjointed things" — nay, not only "disjointed," but a system affected with *fragilitas ossium*, where every bone is broken, and nothing to be seen but here a fragment and there a fragment, a little of everything and nothing complete! Can such a dismembered system, such a collection of *debris*, be of any real practical use? I should say no!

Dr. Ayres considers my quotation from Dr. Lindley as "not sufficiently ample." I confess I do not well understand the *two* senses in which a group may be "natural." Dr. A. says "he (Dr. Lindley) implies that Nature has not indeed created species, orders, genera, or other groups, as such, but has imprinted such characters and affinities on plants as enables us to throw them into groups approximating more or less to the scheme of Nature, and in that sense natural." Now this distinction is somewhat too nice for my organs of discrimination: if Nature has indeed formed such a chain of characters and affinities, then we must say that she has formed the groups which are the tangible representatives of these characters. We cannot say that Nature has created a *name*, as a genus or an order, but if she has created the *thing* we represent and understand by the *name*, where is the difference? The word *species* implies a congeries of individuals having certain common peculiarities and distinctions; and when we say "Nature creates species," we mean that she creates individuals having the properties which we attribute to the abstraction—species.

Dr. Ayres wishes to establish the existence of a plan of Nature by asserting that plants possess certain "gradations of affinity," and are connected with each other by "oscillatory groups." It has not been my good fortune to fall in with these regular "gradations of affinities;" and as to "oscillatory groups," the system generally seems affected with a continual "oscillation," and to be never at rest; for, says Dr. Lindley, "the natural orders seldom follow in the same manner in the arrangements of two different botanists." The existence of regular and connected "gradations of affinity" is just the point I dispute, for I conceive they have, in most instances, their being rather in imagination than in fact, and a group is dubbed "natural," and its "affinities" and "transitions" marked out with unerring accuracy forthwith, in which state it remains for perhaps six months, till some other botanist conceives its position "unnatural," and transfers it to some other place, from thence, in turn, to be removed. If the high-flown pretensions of the natural school were realized, and every genus and every species, from the highest to the lowest type of vegetable life had its true place in the scale of being assigned to it, then indeed we

should lay aside the Linnæan system, the "last loved echoes" of Monandria and Diandria would soon die away, and the faint glimmering light of the Swedish botanist be eclipsed by the noon-tide splendour of the "System of Nature." As, however, unfortunately, this pitch of perfection has not been reached, nor in my opinion ever will, nor *ever can be*, I must take leave to dispute the existence of these "regular gradations of affinity," and count all systems hitherto propounded as alike remote from the System of Nature. Which must necessarily be the case, for I maintain no such system exists, save in the heated imaginations of some over-enthusiastic followers of this visionary school.

Allow me to ask Dr. Ayres, if one group of plants is defined according to the character of its stamens, and another according to the character of its seeds, are they not both equally "artificial"? We shall find that the latter condition is frequently the case in many "natural" orders, for when their definitions are disencumbered of superfluous matter, their essential characters are as limited as those of the Linnæan system.*

We shall take our former example, Ranunculaceæ, and after rejecting the characters which are either inconsistent, and therefore improper to be introduced into Nature's own system, or common to other groups, we shall see what a multitude of points the plants referred to agree in. The definition given by Dr. Ayres from Lindley, is, "Polypetalous dicotyledons with hypogynous stamens, anthers bursting by long slits, several distinct simple carpella, exstipulate leaves sheathing at the base, solid albumen and seeds without arillus." Now all the species are not "polypetalous," inasmuch as some are *apetalous*," neither have all the species "several distinct simple carpella," for in some species the carpels are coherent,—partially in *Nigella* and wholly in *Actæa*. Other orders are, equally with Ranunculaceæ, "dicotyledonous with hypogynous stamens, anthers bursting by long slits, exstipulate leaves sheathing at the base." Thus the characters drawn from the seeds are the only unexceptionable ones, and the group is manifestly as artificial as if it were characterized from the stamens or any other single part.

* A remarkable instance of this occurs in *Detarium*, a genus of Leguminosæ, which has the icosandrous stamens and drupaceous fruit of Amygdaleæ, and only differs from that order by having compound leaves; so that the latter character is the *only* distinctive one between the two groups Leguminosæ and Amygdaleæ, however unlike the typical species may be.

Let us take two British plants referred to this order, and glance at their points of similarity. The two species may be *Ranunculus Ficaria*, and *Actæa spicata*. In the former, the leaves are simple, the stem single-flowered, the sepals three, the petals nine or ten, and nectariferous at the base, the carpella distinct and ultimately forming single-seeded caryopsides. In *Actæa* the leaves are compound, the stem is many-flowered, the sepals and petals four in number, the latter without nectarium, the carpels single, and the fruit a many-seeded berry.

These two plants are exactly opposite in the character of their leaves, inflorescence, calyx and corolla, and fruit, yet this is a "natural" group! — Its members have such a general and at once apparent resemblance, that they may be immediately recognized; they do not agree in one character only, in a multitude of points are they alike; there is no assemblage of "disjointed things" here, all is the harmony of Nature, the system of Creation !!! We are far from that point, I fear, and botanists will soon perceive what an *ignis fatuus* they are pursuing, and seeing the fallacy of the specious theories and bold pretensions of the natural school, return to the simple and philosophical method of acquiring knowledge in the easiest manner, and without troubling their heads about hunting out "affinities" which have no existence, and "transitions" and "oscillatory groups" which have yet to be formed. Let it be borne in mind that by these remarks I do not mean to say that the "natural" system is or ought to be thrown aside; let it be studied in its proper place, and it will be productive of much and lasting benefit. It can scarcely be otherwise, since it bears the impress of the great minds of a Jussieu, a Brown, a Decandolle, and a Lindley; but let it not be foisted forward where it can only disgust and perplex. What would be thought of a teacher of Algebra, who should put the binomial theorem into the hands of his pupil, while he was yet ignorant of the signs? Yet this is exactly what is recommended by those botanists who wish the natural to supersede the artificial system; they would teach the student complicated theories before he has any knowledge of the plants from a comparison of which these theories are formed: and because certain tribes of plants occur in which *true* natural resemblances exist, they hastily assume that such is *universally* the case: and overlooking the legitimate ends of classification, spend needlessly much time and reasoning in attempting to prove the "thing which is not." Let the artificial and the natural systems proceed *pari passu*; they will never be found to come into contact, but to work in sisterly harmony, each confined to its proper sphere, towards the great end of an increased

knowledge of the boundless and wondrous variety of vegetable life and structure. The "artificial" will not quarrel with the "natural" because it is not and never can be the System of Nature; and the natural will tolerate some sacrifices of evident affinity made to precision and clearness of definition by the artificial. Let botanists also occupy themselves in endeavouring to *improve* the Linnæan system, so as to adapt it to our more extended knowledge, and then I have no hesitation in saying that it will never be laid on the shelf, but will be immortal as the science, or as the memory of the giant mind that framed it.

I remain, Sir,

Your obedient Servant,

THOMAS EDMONSTON, JUN.

To the Editor of 'The Phytologist.'

P.S. — Since the above remarks were penned, I have received the April and May numbers of 'The Phytologist,' in which I am glad to find so able and justly distinguished a supporter as Mr. Forster, as it proves that even among those who hold a high rank as botanists, there are still some who do not consider it imperative on them to "follow the fashion" (as I must still beg leave to call the "natural" system, notwithstanding Dr. Ayres' animadversions on the term). I am unwilling to trespass too largely on your space, and will merely offer one brief remark on Dr. Ayres' second paper. The foregoing will, I trust, explain to him my ideas of the nature of species, of which, as it appears to me, he has taken a far too *transcendental* view. It is needless repeating what has already been said; but if Dr. A. will pardon me, I would beg to suggest the getting rid, as speedily as possible, of these ultra-metaphysical views as applied to Botany, for I am sure a little reflection will convince him of the impossibility of applying the strict rules of logical induction to the boundless and ever-varying phenomena of Nature. With this brief remark I trust that Dr. A. will feel satisfied that the preceding remarks do not leave "untouched the great question of the comparative beauty and utility of the two rival systems."

T. E.

ART. CCXIX. — *List of Flowering Plants found in the neighbourhood of Great Marlow, Bucks, in the early part of the Summer of 1843.* By G. G. MILL, Esq.

THE country about Marlow, in Buckinghamshire, is scarcely if at all known to the botanist; indeed it is very little known to any except those in the immediate neighbourhood, and to a few anglers who visit it from its proximity to the Thames.

After passing three summer months there, and being well repaid, as far as botanical researches went, I think it will probably be interesting to the readers of 'The Phytologist' to have some account of the plants of that neighbourhood.

The plants which grow there are either those of a chalk country, or such as are fond of the banks of rivers and the neighbouring alluvial soil, with the swamps and deep ditches which usually attend it; there are also the plants of wet woods, of which there is no lack in the country, it being composed for the most part of low ranges of thickly-wooded hills.

The plants of which there is a deficiency are such as grow on a sandy or dry gravelly soil, on open heaths, or on wet spongy commons, as will be seen by the following list.

Clematis Vitalba. Hedges, frequent.

Thalictrum flavum. About New Lock and Medmenham abundant, and by the Thames generally.

Ranunculus aquatilis. Ponds &c.

———— *hederaceus.* In ponds on a common by the Oxford road, about half way between Marlow and Stokenchurch.

———— *Flammula.* Cookham-dean, &c.

———— *Lingua.* By the water called the Strand, Cookham.

———— *Ficaria.* Thickets and woods.

———— *auricomus.* Woods.

———— *bulbosus.* By road-sides occasionally.

———— *sceleratus.* By the sides of ponds.

———— *arvensis.* Fields on both sides of the Wycombe road, about two miles from Marlow, very abundantly, and elsewhere.

———— *parviflorus.* On the left bank of the Oxford road, immediately out of the town.

Caltha palustris. By the river, frequent.

Aquilegia vulgaris. Bisham wood, and moist woods generally.

Nymphaea alba and *Nuphar lutea*. Thames near Temple, &c.

Papaver Argemone and *Rhœas*. Corn-fields, frequent.

—— *dubium*. Walls and banks near the town, &c.

Chelidonium majus. Road-sides, Bisham wood by Winter hill.

Nasturtium officinale. Ditches and ponds.

—— *amphibium*. Banks of the river &c. frequent.

—— *terrestre*. By the sides of ponds.

Turritis glabra. In a coppice at the top of Cookham down, extremely plentiful.

Arabis hirsuta. On the bank of the lane which turns off from the Little Marlow road opposite Sir G. Nugent's, about two miles up the lane, sparingly.

Sisymbrium officinale and *Alliaria officinalis*. Frequent.

Brassica campestris. Abundant by the Thames.

Sinapis arvensis. This plant grows but sparingly in this neighbourhood, being replaced by *S. alba*, which abounds everywhere.

Thlaspi arvense. Common fields opposite Bisham wood, abundantly.

Iberis amara. This is a common plant in the corn-fields about Marlow; it grows most profusely in a wood overhanging the Henley road at Medmenham.

Raphanus Raphanistrum. Corn-fields, abundant.

Reseda lutea. Fields between the Oxford and Wycombe roads &c.

—— *Luteola*. Chalk-pits, Medmenham &c.

Helianthemum vulgare. On the chalk, abundant.

Polygala vulgaris. Very common on the chalk.

Dianthus Armeria. By the side of the Henley road, Hambledon, also by the Little Marlow road by Sir G. Nugent's.

Lychnis Flos-cuculi. Wet meadows, frequent.

—— *vespertina* (dioica β .) and *diurna* (dioica).

—— *Githago*. Common fields opposite Bisham woods &c.

Sagina procumbens and *apetala*.

Spergula nodosa. Winter hill and Cookham down.

—— *arvensis*. Corn-fields.

Stellaria holostea. Hedges.

—— *glauca*. By the side of the deep ditch which bounds the meadow immediately above the suspension bridge.

—— *graminea*. Dry places, frequent.

Malachium aquaticum. Wet places by the river.

Arenaria serpyllifolia. Walls, frequent.

Malva moschata. Fields to the left of the Wycombe road just beyond the town.

— *sylvestris* and *rotundifolia*. Under walls and by road-sides.

Hypericum Androsæmum. At the top of Bisham wood, and in moist woods, generally.

— *quadrangulum*. By the river side and the sides of ditches occasionally.

— *perforatum*. Very common.

— *humifusum*. On a little common to the right of the Wycombe road, also on the terrace of Sir W. Clayton's.

— *hirsutum*. Common.

— *montanum*. Woods south-east of Marlow common; woods between the Wycombe and Oxford roads &c.

— *pulchrum*. Frequent in dry places.

Acer campestre. Hedges.

Geranium pratense. Banks of the river abundantly.

— *pyrenaicum*. Not very common.

— *pusillum*. Common.

— *dissectum*. By road-sides &c. frequent.

— *columbinum*.

— *molle*. Frequent.

— *lucidum*. On the bank of a lane turning out of the Little Marlow road, on the left, beyond Little Marlow; it grows not far from the main road.

— *robertianum*. Lanes &c.

Linum catharticum. Winter hill &c.

Oxalis Acetosella. In all the woods.

Euonymus europæus. Bisham wood and hedges generally.

Ulex europæus. Little common about two miles from Marlow, on the Wycombe road.

Genista anglica. Cookham down.

Ononis arvensis. Occasionally.

Anthyllis vulneraria. In two or three places on the chalk.

Melilotus officinalis. New Lock.

Trifolium arvense. Little hollow opposite Sir G. Nugent's.

— *pratense, repens, procumbens, filiforme*.

Lotus corniculatus and *major*.

Astragalus glycyphyllos. In the thicket on the right hand side of the road from Hedsor to Clifden, about half way up the ascent to Clifden, growing very luxuriantly.

Vicia hirsuta and *tetrasperma*. In a lane leading from the Henley road to King's farm, and in the road which overhangs the farm.

—— *Cracca*, *sepium* and *sativa*. Frequent.

Lathyrus pratensis. Bisham wood &c.

Orobus tuberosus. Woods &c.

Spiræa Ulmaria. Wet meadows by the river.

—— *Filipendula*. Meadow by the river between Bisham wood and the town, abundant.

Geum urbanum.

Poterium Sanguisorba. In dry places.

Agrimonia Eupatoria. Road-sides.

Alchemilla vulgaris. In woods north-west of Marlow, beyond Marlow-common.

—— *arvensis*. Frequent.

Potentilla anserina, *argentea*, *reptans*, *Tormentilla*.

Fragaria vesca. Woods, frequent.

Rubus Idæus. On Marlow-common and in the wood to the right.

—— *cæsius*. Bisham wood.

Rosa rubiginosa. In hedges about Wycombe, on the Marlow side.

—— *canina*. Hedges, frequent.

—— *arvensis*. On the borders of woods &c. but not nearly so frequent as the former.

Pyrus Malus. Hedges occasionally.

—— *Aria*. Bisham wood &c. very abundant in the neighbourhood.

Lythrum Salicaria. Banks of the Thames, abundant.

Epilobium angustifolium. In the wood of Harleyford, in great profusion; also in Bisham wood, but sparingly.

—— *hirsutum*. Banks of the Thames, abundant.

—— *parviflorum*. Wet places.

—— *montanum*. Very common.

—— *tetragonum*. Bisham wood.

Circæa Lutetiana. Woods.

Myriophyllum verticillatum. There are few ditches or ponds about Marlow which do not produce this plant; it grows more especially, however, in the deep ditches above the suspension bridge; also copiously in the wood by Sir W. Clayton's park near the house, as well as in a little pond in the middle of a field immediately under Bisham wood, about half way between the river and the Maidenhead road.

—— *spicatum*. Much less common than the former; it

only grows, I believe, in the shallow ponds on Cookham dean, at the top of Bisham wood.

Bryonia dioica. Common in the hedges.

Scleranthus annuus. Common in corn-fields about Maidenhead.

Sedum Telephium. In a lane between the Oxford road and hills on the left, a little way out of the town; also very abundantly in the first lane turning out of the Little Marlow road on the left, beyond Little Marlow.

— *acre*. Walls &c.

Ribes Grossularia. Bisham wood, and on the Wycombe road about two miles from Wycombe.

Saxifraga tridactylites. Wall by the village of Hurley.

Sanicula europæa. Woods.

Helosciadium nodiflorum. Ponds, frequent.

Egopodium Podagraria. Under hedges near houses.

Bunium flexuosum. Stokenchurch woods.

Sium latifolium. This plant grows abundantly in the largest pond at the foot of Cookham down; also in the river at the foot of Clifden sparingly; and by the side of the deep ditch before mentioned, above the suspension bridge.

— *angustifolium*. Grows in the same ditch with *S. latifolium*, above the bridge.

Enanthe fistulosa. In the pond of Sir W. Clayton's, near the house, and in ponds at the foot of Cookham down.

— *crocata* and *Phellandrium*. Ponds at the foot of Cookham down, &c.

Æthusa Cynapium. Common.

Silaus pratensis. By the side of the river opposite Temple; also very abundant in the meadows about Cookham and under Bisham wood.

Angelica sylvestris. By the banks of the river.

Pastinaca sativa. Common.

Heracleum Sphondylium. Very common.

Daucus Carota.

Torilis infesta. Corn-fields, frequent.

— *nodosa*. Under a wall by the side of the river near Hambleton; also on Cookham green, and in a field on the right of the Wycombe road, at the first descent.

Scandix Pecten-Veneris. Corn-fields, everywhere.

Anthriscus vulgaris.

Conium maculatum. Exceedingly fine by the river at New Lock; and at Clifden.

- Adoxa moschatellina*. Woods beyond Marlow common.
Cornus sanguinea. Hedges frequent.
Viburnum Lantana. Hedges, Bisham wood, &c.
 ——— *Opulus*. Bisham wood, &c.
Lonicera Periclymenum. Hedges &c.
Sherardia arvensis. Corn-fields.
Asperula Cynanchica. Foot of Winter hill, by the path ; Medmenham, very fine, and by the banks of the road from Maidenhead to Henley.
 ——— *odorata*. In all the woods, abundant.
Galium cruciatum. Banks by the Oxford road ; Bisham wood &c.
 ——— *palustre*. Wet places.
 ——— *Mollugo*. Frequent.
 ——— *verum*. Road-sides.
 ——— *saxatile*. Commons.
 ——— *uliginosum*. Wet places.
 ——— *Aparine*. Everywhere.
Valeriana officinalis. In wet places near the river abundantly.
 ——— *dioica*. About Medmenham.
Valerianella olitoria. Corn-fields, frequent.
 ——— *dentata*. Corn-fields at Clifden, &c.
Dipsacus sylvestris.
Knautia arvensis. Frequent.
Scabiosa succisa.
 ——— *Columbaria*. By the road-side, Medmenham.
Eupatorium Cannabinum. By the banks of the river abundantly.
Petasites vulgaris and *Tussilago Farfara*.
Erigeron acris. In dry places.
Inula Conyza. New Lock, &c.
Pulicaria dysenterica. Wet places.
Achillæa Ptarmica. By the river side.
 ——— *Millefolium*. Frequent.
Chrysanthemum Leucanthemum and *segetum*. The latter a most luxuriant weed in the fields on the Henley and Maidenhead road near Hurley.
Pyrethrum Parthenium.
Artemisia vulgaris. Common.
Filago germanica, *minima*, and *Gnaphalium uliginosum*.
Senecio erucæfolius. In the Bisham-wood quarry.
 ——— *Jacobæa*. Waste places.
 ——— *aquaticus*. In wet places by the river.

Centaurea nigra and *Scabiosa*.

———— *Cyanus*. Corn-fields at the top of Cookham down &c.

Arctium Lappa and *minus*. By road-sides.

Onopordum Acanthium. At the corner of the village of Hurley, where the road to the mill turns off.

Carduus nutans. Winter hill and Cookham down, abundantly.

———— *acanthoides*, *lanceolatus* and *arvensis*. Frequent.

———— *palustris*. Frequent by the side of ditches and wet places generally.

Silybum Marianum. By the left hand side of the Little Marlow road where the lane before mentioned turns off, beyond Little Marlow; also further on, near the little village on the same road.

Lapsana communis. Common in dry situations.

Cichorium Intybus. By road-sides.

Hypochaeris radicata.

Tragopogon — ? In wet meadows.

Picris hieracioides.

Lactuca muralis. Bisham wood &c.

Barkhausia foetida. This plant, which formerly grew, though very sparingly, in Bisham wood, does not appear to grow there any longer, but it occurs in the waste ground on the north side of the Great Western railway, close to the Maidenhead station, though but sparingly. It may easily be distinguished in any state by its root, which has a powerful smell of bitter almonds.

Crepis virens. Everywhere.

Sonchus oleraceus and *arvensis*. There were two specimens of the former growing in a wet hollow at the top of Bisham wood, of an enormous size; I should think they were at least eight feet high, and were proportionally large in all their parts.

Hieracium Pilosella. On dry banks.

Jasione montana.

Campanula glomerata. Meadows by the river between the town and Bisham wood, very abundantly; also very fine in the wood to the right of the Maidenhead road, on the first ascent.

———— *Trachelium*. Woods, frequent.

———— *rotundifolia*. Dry places, frequent.

———— *patula*. At the top of a lane which turns out of the Henley road on the right, opposite Medmenham church.

Specularia hybrida. Abundantly in a corn-field through which the path passes which enters the town at the Crown inn; also sparingly on a wall at the village of Hurley.

Pyrola minor. This extremely beautiful little plant grows in all the woods round Marlow-common; I have also seen it growing in woods to the right of the Wycombe road. There can be no doubt that it grows in most of the woods in this neighbourhood, for it must undoubtedly be the same as the *Pyrola* of the Stokenchurch woods, which Sir J. E. Smith suspected might be *P. media*, and which was found, under the same name, by Mr. W. Pamplin, near Henley-on-Thames.

Monotropa Hypopitys. Bisham wood, above the quarry; also in the woods between the Oxford and Wycombe roads, but sparingly; and at Clifden.

Ligustrum vulgare. Bisham wood, &c.

Chlora perfoliata. Bisham wood, and on the bank of the road at Medmenham.

Erythraea Centaurium. In the wood overhanging the Henley road at Medmenham, and near New Lock, &c.

Gentiana Amarella. On the chalk occasionally, sometimes of great size and beauty.

Menyanthes trifoliata. By the side of a ditch in a wet meadow between New Lock and Medmenham, and also by the Strand, at Cookham, very abundantly.

Convolvulus arvensis and *sepium*.

Cynoglossum officinale. Wood of Clifden which overhangs the river.

Lycopsis arvensis. By the side of the Henley and Maidenhead road near the field-path to Hurley.

Symphytum officinale. Bank of the river, everywhere.

Echium vulgare. Near Cookham bridge, very fine, and elsewhere.

Lithospermum officinale. Abundant by the side of the Henley road at Medmenham, and in Bisham wood, sparingly.

———— *arvense*. Corn-fields, but not common.

Myosotis palustris. By the river and in wet places generally.

———— *arvensis*.

———— *versicolor*. By a pond adjoining the Oxford road.

Solanum nigrum and *Dulcamara*. Common.

Atropa Belladonna. In the woods between the Oxford and Wycombe roads, copiously; it also grows sparingly by an entrance into Bisham wood, a short distance up the ascent of the Maidenhead road.

Hyoscyamus niger. Near a pond at the back of the town, not far from the church; also by the side of a ditch in the common pasture under Cookham down; Pinkney's heath.

Verbascum Thapsus and *nigrum*. Common.

Verbascum Blattaria ? One specimen at New Lock, perhaps escaped from a garden.

Orobanche major. Growing on furze upon the little common before mentioned, on the right of the Wycombe road.

———— *minor*. In the common fields opposite Bisham wood ; also in a field above Cookham down, abundantly.

Digitalis purpurea. In the woods, frequent.

Antirrhinum Orlontium. In the common fields opposite Bisham wood.

Linaria spuria. In cornfields on the right of the Henley road, just out of the town.

———— *repens*. This plant still grows abundantly in its old recorded habitat, namely, on the steep bank by the Henley and Maidenhead road, above Henley bridge.

———— *minor*. This species also grows there, but sparingly.

———— *vulgaris*. Frequent.

Scrophularia nodosa. Bisham wood &c.

———— *aquatica*. Frequent by the river and in moist places.

It is curious that in so wooded a country, and in a neighbourhood so well suited to it in every respect, so common a plant as *Melampyrum pratense* does not appear to grow.

Pedicularis palustris. Common in wet meadows ; it is very fine and abundant in marshy meadows to the left of the first lane leading from the Henley road to Sir W. Clayton's.

———— *sylvatica*. Wet common by the Stokenchurch road.

Rhinanthus Crista-galli. In meadows.

Euphrasia officinalis and *Odontites*. Frequent.

Veronica scutellata. Little pond to the right of the Stokenchurch road.

———— *Anagallis* and *Beccabunga*. Ditches &c.

———— *montana*. In Bisham wood, and in most of the moist woods in the neighbourhood.

———— *officinalis*. Woods, common.

———— *Chamædryas* and *agrestis*.

Mentha sativa, (*hirsuta*, Sm.). Wet places, common.

———— *arvensis*. Common.

Lycopus europæus. Common by the banks of the river.

Salvia verbenaca. By the road-side at Medmenham, and between Medmenham and Henley, abundantly.

Origanum vulgare and *Thymus Serpyllum*. Common.

Calamintha Nepeta. This plant grows on the bank of the first lane

before mentioned, which turns off from the Little Malvern road, on the left, beyond Little Marlow; it also grows in small quantity on the main road, immediately before the lane.

Calamintha officinalis. Far commoner than the latter species; it grows in various places along the Little Marlow road and on the dry banks by most of the lanes thereabouts; it also grows on the borders of Bisham wood, at the top of the hill.

———— *Acinos* and *Clinopodium*. In corn-fields and dry places, frequent.

Scutellaria galericulata. By the banks of the river.

Nepeta Cataria. In hedges, particularly on the Henley road between Medmenham and Henley.

Lamium purpureum, *album* and *Galeobdolon*.

Galeopsis Ladanum. Corn-fields.

———— *Tetrahit*. Hedge-sides &c.

Stachys Betonica. Cookham dean; the only place where it appears to grow in the neighbourhood.

———— *sylvatica*.

———— *palustris*. By the river-side, frequent.

Verbena officinalis.

Utricularia vulgaris. Pond at the foot of Cookham down, nearest Cookham; also in the ditch before mentioned which bounds the meadow immediately above the suspension bridge.

Hottonia palustris. In the ditches by the river above the suspension bridge, and in ditches at New Lock very abundantly.

Lysimachia vulgaris. By the river-side abundantly.

———— *Nummularia*. Banks about Little Marlow, and on the Henley road near Henley; also in the wet meadows about Cookham.

———— *nemorum*. Bisham wood, abundantly.

Plantago Coronopus, *lanceolata*, *media*, *major*. Common.

Daphne Laureola. In the wood which overhangs the Henley road at Medmenham; also in woods to the right of the Oxford road, but sparingly.

Euphorbia helioscopia and *Peplus*.

———— *amygdaloides*. Woods &c.

———— *exigua*. Cornfields.

Mercurialis perennis. In all the woods.

Humulus Lupulus. Hedges.

Juniperus communis. Plentiful on the part of Marlow common adjoining the Harleyford woods; occasionally in Bisham wood.

Hydrocharis Morsus-ranæ. Frequent in ponds and ditches.

Orchis militaris. On the precipitous bank of Bisham wood, near the quarry, both below and above the path, but sparingly: it also grows very sparingly in the wood overhanging the Henley road, at Medmenham.

—— *maculata*. Frequent.

—— *pyramidalis*. Woods between the Oxford and Henley roads; by the Henley and Maidenhead road, &c.

—— *conopsea*. Woods between the Oxford and Henley roads; also in the wood at Medmenham mentioned above.

Habenaria bifolia. Bisham wood, especially the continuation of it on the right of the Maidenhead road.

Ophrys apifera. On the turfy slope of the woods between the Oxford and Henley roads, on the right side of the valley.

—— *muscifera*. In almost all the woods more or less.

Listera ovata. Bisham wood.

Neottia Nidus-avis. Very abundant in Bisham wood, on both sides of the Maidenhead road, &c.

Epipactis latifolia. Bisham wood, especially the continuation of it on the right of the Maidenhead road. There is an *Epipactis* growing in the Stokenchurch woods, which is, in its young state, quite purple in both leaves and stem: it must, I suppose, be *E. purpurata*. I have seen it also in Bisham wood, but have not had an opportunity of seeing it in flower.

Cephalanthera grandiflora. In Bisham wood, abundantly; and in the woods round Sir W. Clayton's house.

Iris Pseud-acorus. Wet places near the river.

—— *foetidissima*. Wood at Medmenham before mentioned; New Lock, abundantly; woods between the Oxford and Wycombe roads, abundantly.

Ruscus aculeatus. Clifden.

Juncus effusus and *conglomeratus*.

—— *acutiflorus*. Pond in the common fields opposite Bisham wood.

—— *supinus*, (*uliginosus*, Sm.) Cookham dean.

Luzula Forsteri, *pilosa* and *campestris*. Bisham wood and wet woods generally.

—— *congesta*. At the top of Bisham wood.

Alisma Plantago.

Sagittaria sagittifolia. Ditch above the suspension bridge, &c.

Butomus umbellatus. In one of the ponds at the foot of Cookham down.

- Typha latifolia*. In the same pond.
- Sparganium ramosum* and *simplex*. In the same pond.
- Potamogeton natans*. Ditches and ponds.
- *crispus*. In a pond by the side of the Wycombe road, about three miles from Marlow.
- Eleocharis palustris*. Wet meadow under Bisham wood.
- Scirpus lacustris*. Thames, frequent.
- Carex vulpina*. By the side of the river and ditches, common.
- *muricata*. Bank of the Henley road, near the first ascent, and in lanes on that side of the town; Bisham wood, &c.
- *remota*. Bisham wood and by the side of ditches &c.
- *ovalis*. By the side of ponds on Cookham dean, &c.
- *sylvatica*. Bisham wood, &c.
- *Pseudo-cyperus*. Abundantly in a ditch at the foot of Cookham down, by the nearest pond.
- *glauca*, (*recurva*, *Huds.*). In all the woods.
- *hirta*. By the bank of the river near Sir G. Nugent's.
- *vesicaria*. By a pond in a field immediately below Bisham wood, about half way between the river and the Maidenhead road.
- *paludosa* and *riparia*. Banks of the river, &c.
- Phalaris arundinacea*. By the river side &c., frequent.
- Alopecurus pratensis*, *geniculatus* and *agrestis*.
- Milium effusum*. Woods, common.
- Agrostis vulgaris* and *alba*. By the side of cornfields &c., abundantly. I suppose both these species grow there, but should be very glad to know of any decided character by which to distinguish the two species.
- Phragmites communis*. In wet places by the river.
- Aira cæpitosa*. Wet meadows &c., common.
- Trisetum flavescens*. Common.
- Avena sativa*. In a field to the right of the Wycombe road, at the first descent; in the common fields opposite Bisham wood, &c.
- *pubescens*. Winter hill; on the chalk, common.
- Arrhenatherum avenaceum*. Hedges everywhere.
- Holcus lanatus*. Roadsides &c.
- *mollis*. On the little common between the Oxford road and King's farm.
- Triodia decumbens*. Woods to the right of the Henley road, a little way out of the town.
- Koeleria cristata*. In the little wood on the right of the Maidenhead road at its first ascent, but sparingly.

Poa pratensis, trivialis and *nemoralis*. The latter in woods.

Glyceria aquatica. Abundantly in wet places by the lane which runs parallel with the river, above the suspension bridge, and in the river, frequently.

—— *fluitans*. Ponds and ditches.

Schlerochloa rigida. On walls and dry banks.

Briza media. Common.

Cynosurus cristatus. Ditto.

Dactylis glomerata. Ditto.

Festuca bromoides (Myurus). On a wall behind the town near the church.

—— *ovina*. In dry places.

—— *gigantea*. Bisham wood, and in shady places elsewhere.

—— *elatior*. In the lane before mentioned, running parallel with the river above the suspension bridge, and in wet pastures.

Bromus erectus. Bisham wood, to the left of the path leading to Winter hill, and on the chalk, frequently.

—— *asper*. Bisham wood, and in woods generally.

—— *sterilis*. By road-sides &c.

Serrafalcus racemosus. Growing abundantly in the meadows immediately under Bisham wood, by the side of the river.

Brachypodium sylvaticum. Woods, abundantly.

Triticum caninum. In Bisham wood, on the right, after crossing the little foot-bridge; and on dry banks about Clifden, &c.

—— *repens*. Hedges &c.

Lolium perenne.

—— *multiflorum*. I found this plant growing in a field on the left side of the Maidenhead road, about a mile from the town of Maidenhead; it grew in patches about twice as tall as the *L. perenne* which surrounded it. The number of florets is variable, but in some plants they are as many as sixteen or seventeen, and the awn is usually rather longer than the glumes.

Hordeum sylvaticum. Abundantly in Bisham wood, and in most of the woods, more or less.

—— *pratense*. Meadows, frequent.

—— *murinum*. Roadsides &c.

G. G. MILL.

Kensington, January, 1844.

ART. CCXX.—*Varieties.*

483. *Note on the Primula elatior.* I am glad to find that the *Primula elatior* has, this season, claimed the attention of some of our eminent English botanists, and that the result of their examination quite coincides with the opinion I have formed respecting this plant. It grows very abundantly in many of the woods in this neighbourhood, while *P. vulgaris* is rather uncommon, and is never met with, so far as my observation has extended, in the same woods as *P. elatior*; in a few places *P. veris* and *vulgaris* are found intermixed, and among them is occasionally scattered a plant which I take to be a hybrid between them, partaking of the characters of each, but it is quite different from the real *P. elatior*, both in the colour and form of the flower, in the calyx, &c.; but in these situations there are only a few scattered among the two parent stocks, while in those places where *P. elatior* grows, neither *P. vulgaris* nor *P. veris* is met with, which, were the former only a hybrid between them, must be considered a very remarkable and inexplicable circumstance. I have had a plant of it in my garden for several years, where it retains in all respects its specific characters.—*G. S. Gibson: Saffron Walden, May 5, 1844.*

484. *Proposal as to the Nomenclature of the Bardfield Oxlip.* Botanists appear more and more to incline to the opinion that Mr. Doubleday's Bardfield oxlip is distinct as a species; and I believe they generally coincide also in the opinion that it is not the plant termed *elatior* by Linneus and the majority of subsequent authors: it may further be stated as the opinion of competent judges, that Mr. Doubleday's plant is the *Primula elatior* of Jacquin. Sir William Hooker, in the recently published edition of his '*British Flora*,' gives *Primula elatior* of Jacquin as synonymous with *Primula veris* β . *elatior* of Linneus, without any allusion to the Bardfield plant, and Mr. Babington gives the Bardfield plant as a distinct species, without any allusion to the Linnean plant. We are thus compelled, in order to avoid confusion, to speak of Mr. Doubleday's discovery as *the Bardfield oxlip*, or *Jacquin's elatior*, or to devise some other unscientific term in order to make ourselves understood. This does not seem in accordance with the usage of science. It is quite evident that the name of *elatior* is preserved out of respect to Linneus, but it is a tribute of respect we have no right to pay. Were Linneus himself living, would he not unite with us in opinion as to the non-identity of the two *elatiors*? Would he not say, "I object, gentlemen, to your

giving one of my names to a species with which I was unacquainted ; I still believe *my* elatior to be nothing more than a hybrid, or a casual variety, *yours* is a distinct species, and must not be confounded with *mine*." I suggest therefore that it should bear the name of Jacquin, if that author was the first to point out its distinctness as a species, and that it should henceforth be called *Primula Jacquinii*. — *Edward Newman ; Peckham, May, 1844.*

485. *Note on Lunularia vulgaris fruiting under glass.* About this time last year I received from J. Ralfs, of Penzance, some living specimens of *Lunularia vulgaris*, with young female receptacles covered by the indusium, being informed by him that they never attain to greater perfection in that neighbourhood. I placed them in a box under glass, with other Hepaticæ, and in two or three months had the pleasure of seeing the peduncle gradually rise, and the fruit fully matured, with its cruciform tubulose processes. As the circumstance of *Lunularia* fruiting under glass is mentioned in 'Flora Hibernica,' I thought it might be interesting to some of the readers of 'The Phytologist.'—*Isaac Brown ; Hitchin, 15th 5th Mo. 1844.*

486. *New locality for Barkhausia setosa.* On carefully examining some plants which I gathered last summer in a clover-field, on a chalk soil, near Hitchin, I find that they perfectly agree with the description of *Barkhausia setosa* in Koch's Synopsis, and have no doubt that they were introduced with the clover-seed. This makes the third station, if I mistake not, for this plant. — *Wm. Dawson ; Hitchin, May 15, 1844.*

487. *Note on Agaricus macrorhizus.* Since I sent you the list of Agarics found in the neighbourhood of Hitchin (Phytol. 968), Mr. I. Brown met with a fine crop of *Agaricus macrorhizus*, growing plentifully in a cucumber-bed, some having a pileus an inch and a half broad, and a root five or six inches long. *Agaricus domesticus* was also found growing on damp wood in a wash-house.—*Id.*

488. *List of Mosses found near Penzance.* A list of Algæ, many of them peculiar to this district, from the pen of Mr. Ralfs (Phytol. 193), and one of the Hepaticæ of Penzance by Mr. Curnow (Id. 609) having already appeared in the pages of 'The Phytologist,' I venture to add also a list of the mosses of the neighbourhood, presuming it will not be altogether devoid of interest, as it contains several rather rare species. Although many additions have been made during the last winter, and the list at present is by no means a short one, still I believe that much remains to be done in investigating the mosses of this western limit of England, the greater portion of the north, and some

portion of the southern coast, still remaining unexplored ; a line of country, which, especially where some rivulet dashes down the cliffs, must be peculiarly adapted to the growth of many cryptogamic plants. It may be as well to observe that all the species mentioned here grow within four miles of Penzance, except those which are stated to occur only at Hayle, St. Ives, the North Coast, or the Land's End, which would be about eight miles distant.

Phascum subulatum.

—— *axillare*. Field near Newlyn,
Mr. Curnow. The preceding winter we were unable to find this moss.

—— *cuspidatum*. Banks, not very common.

—— *rectum*. Banks, most plentiful between Penzance and Hayle.

Sphagnum obtusifolium and *acutifolium*.

—— *cuspidatum*, B. Moor near Madron.

Gymnostomum viridissimum. Trunks of trees ; fruit not uncommon in this neighbourhood.

—— *truncatum*.

—— *crinita*, (Pottia crin. Wils. MS.) On the ground over a cave between Mousehole and Lamorna.

—— *conicum*. Banks, chiefly between Penzance and Hayle.

* ——— *ericetorum*, var. (Physcomitrium ericetorum, Br. & Schimp., *Gymnostomum fasciculare*, Hook. & Tayl.) Coast between Mousehole and the Land's End, rather plentiful in wet places.

* ——— *fasciculare*. (Phys. fasciculare, Br. & Sch.) Frequent in meadows, both in wet and dry situations.

—— *pyriforme*. Common.

—— *microstomum*. St. Michael's Mount, a single tuft gathered.

Anictangium ciliatum. Rocks and stones.

Schistostega pennata. Moist recesses of banks in many places, fruit rare in this district.

Diphyscium foliosum. Banks near Choön. Road-side above Trenguanton carn, Mr. Curnow.

Weissia affinis. Cliff between Mousehole and Lamorna, along with *Pottia crinita*.

—— *cirrata*. Sparingly on a stone in Trevalyer bottom,† Mr. Ralfs.

—— *curvirostra*. Bank near Hayle causeway, Mr. Ralfs.

—— *controversa*.

—— *verticillata*, B. Wet rocks on the coast near St. Ives.

Grimmia maritima. Common on rocks above high-water mark.

—— *pulvinata*. Stones near Bologas by no means abundant.

Didymodon purpureus.

—— *trifarius*. Coast near Newlyn ; plentiful around Hayle.

—— *flexicaulis*, B. Sennen green near the Land's End, Mr. Ralfs.

Trichostomum funale. Tol Carn, Newlyn, sparingly in fruit.

—— *heterostichum*. Common on rocks and stones.

—— *aciculare*. Plentiful in the rocky streams : it also occurs in dry situations.

—— *fasciculare*. Not nearly so abundant as the last ; fr. rather scar.

* I am indebted for my information respecting these two mosses to Mr. Wilson, who also kindly named several of the other species which were sent to him by Mr. Ralfs.

† A bottom is a provincial term here for a narrow valley, mostly where some rivulet runs down towards the sea.

- Trichostomum polyphyllum*. Very comn.
Dicranum bryoides.
 ——— *β. osmundioides*. In caves of the southern coast.
 ——— *adiantoides*. Fruit scarce.
 ——— *taxifolium*. Fruits near Newlyn
 ——— *glaucum*, B.
 ——— *flexuosum*. Heathy moor, rather common.
 ——— *squarrosum*, B. North coast, near Morvah.
 ——— *scoparium*. Bologas.
 ——— *Dillensi*. Abundant on the moors.
 ——— *varium*. Bank near Penzance; plentiful in an old clay-pit near Coperhouse.
 ——— *heteromallum*.
Tortula rigida. Wall-tops &c. very com.
 ——— *muralis*.
 ——— *ruralis*. Barren upon Marazion green and the sand-banks at Hayle.
 ——— *β. lævipila*. In fruit on trees and stones, but not very common.
 ——— *unguiculata*.
 ——— *fallax*. Foliage in many places; fruit on a wall near Bologas.
Polytrichum undulatum and *proliferum*.
 ——— *juniperinum*. I have met with several specimens of this moss with two distinct setæ arising from the apex of the stem, but having the calyptræ closely united "by their hairy covers, thus forming, as it were, a two-celled calyptra," precisely as mentioned by Mr. T. Sansom of P. commune (Phytol. 93), who gives a detailed account of this monstrous variety.
 ——— *urnigerum*, B. Chy-an-háll moor.
 ——— *commune*, *aloides*, *nanum*.
Entosthodon Templetonii. Pathway along the cliffs between Hayle & St. Ives.
Funaria hygrometrica.
Zygodon conoideus. Sparingly on a single tree in Trevayler bottom, *M. Ralfs*.
Orthotrichum affine and *β. pumilum*.
 ——— *diaphanum*. On trees, common, sometimes upon stones.
 ——— *crispum*. Rare in fruit: also found on stones by the coast.
 ——— *pulchellum*. On elder trees in Keneggie-bottom, near Badger's cross, *Mr. Ralfs*.
Bryum palustre. In fruit on Tremethick moor.
 ——— *carneum*. Old clay-pit near Coperhouse, *Mr. Curnow*.
 ——— *argenteum*, *capillare*, *cæspitium*.
 ——— *nutans*. Cliff near Newlyn.
 ——— *alpinum*, B. Rather frequent in wet places upon the cliffs beyond Mousehole.
 ——— *ventricosum*, B.
 ——— *ligulatum*. In fruit at Trevayler-bottom.
 ——— *punctatum*. Sides of streams, co.
 ——— *hornum*. Abundant.
 ——— *Tozeri*. Barren in several places; in fruit in a hole of the cliff near Newlyn, *Mr. Curnow*.
Bartramia pomiformis. Banks, common.
 ——— *fontana*. Common. A small variety in fruit on the coast near Mousehole, and on the north coast.
Pterogonium gracile, B. Tol Carn, Newlyn.
Leucodon sciurioides, B. Tree in Lovelane, Penzance.
Neckera crispa, B. Path along the cliff between St. Ives and Hayle; also on the north coast.
Daltonia heteromalla.
Fontinalis antipyretica, B.
 ——— *squamosa*. Abundant in all the rapid streams.
Hookeria lucens. Sides of streams, &c., common.
 ——— *late-virens*. Mousehole-cave, very sparingly in fruit, *Mr. Ralfs*.—This rare moss was also discovered by Mr. Borrer, in another cave between Mousehole-cave and Lamorna but I fear it is now extinct there, as

Mr. Ralls and myself searched the spot diligently this winter, but were unable to find a vestige of it.

- Hypnum complanatum*. Fruit not comn.
 — *undulatum*, B. Rather frequent.
 — *denticulatum*. Common.
 — *serpens*.
 — *populeum*. Stone hedges &c. in many places.
 — *purum*. Fruit scarce.
 — *Schreberi*. Common.
 — *catenulatum*, B. In several places; abundant in some of the caves of the coast.
 — *plumosum*. By Trengwainton-pond.
 — *sericeum*. Fruit not common.
 — *lutescens*, B. On the ground occasionally; very abundant upon the sand-banks at Hayle.
 — *alopecurum*.
 — *curvatum*. Not very common.
 — *myosuroides*.
 — *splendens*. Moist banks &c. frequent; fruit occasionally met with.
 — *proliferum*. In fruit in many places.
 — *prælongum*.
 — *blandum*, B. Stone wall near Gulval, also at St. Michael's mount.

Hypnum rutabulum, ruscifolium.

- *striatum*. In fruit in Trevalyer-bottom, and near Hayle.
 — *confertum*.
 — *cuspidatum*. In fruit at Tremethick moor and Marazion marsh, and also near Copperhouse.
 — *polymorphum*, B. Between St. Ives and Hayle
 — *stellatum*, B. North coast near Morvah.
 — *loreum*, B. Banks &c.
 — *triquetrum*. In fruit near Bologas and at Trevalyer-bottom.
 — *brevirostre*, B., *squarrosus*, B.
 — *filicinum*, B. A large var. upon rocks by the sea, where water runs down, near Mousehole, and at Hayle.
 — *palustre*, B. Tringwainton pond.
 — *fruticans*. In fruit at Chy-an-hâl moor.
 — *scorpioides*, B. Tremethick moor
 — *cupressiforme*. Extremely common. A small variety with an erect cylindrical capsule and rostrate lid, is very abundant upon apple-trees.
 — *molluscum*, B. Plentiful by the side of a path along the cliffs between Hayle and St. Ives. Also at Newlyn, very sparingly.

I cannot do less than acknowledge that I am indebted to Mr. Ralls and Mr. Curnow, for their kind assistance in my investigations, and for having directed me to the stations of many of the species.—*Alfred Greenwood : Penzance, May 11, 1844.*

489. *Note on Anthyllis vulneraria.* Upon examining various specimens of this plant, gathered near Mousehole, I was surprised to find that the stamens were not monadelphous, as stated in all the Floras to which I have access, but truly diadelphous, or nine united and one free. May I enquire, through the medium of 'The Phytologist,' whether this variety be of frequent occurrence; for a variety I suppose it must be, as, had it been the usual state of the plant, botanists would surely never have placed it in the monadelphous group. — *Id.*

490. *List of Agarics found near Bromley, Kent.* In compliance with Mr. Dawson's request (Phytol. 968), I subjoin a list of Agarics

found during the last three years in the neighbourhood of this place ; all, except *A. violaceus*, within a radius of three miles.

<i>Agaricus phalloides</i>	<i>Agaricus coccineus</i>	<i>Agaricus caperatus</i> , β .
vaginatus	laccatus	squarrosus
muscarinus	β . amethystinus	collinitus
asper	sulphureus	fastibilis
procerus	radicatus	flocculosus
cristatus	velutipes	rimosus
granulosus	fusipes	geophyllus
ditto, white variety	butyraceus	furfuraceus
melleus	dryophyllus	tener
eburneus	peronatus	hypnorum
Cossus	oreades	involutus
hypothecus	esculentus	variabilis
fulvus	ramealis	bombycinus
rutilans	Rotula	volvaceus
imbricatus	androsaceus	Georgii
multiformis	caulicinalis	campestris
argyraceus	epiphyllus	semiglobatus
Columbetta	filipes	vervacti
personatus	alcalinus	æruginosus
nudus	galericulatus	lachrymabundus
alutaceus	elegans	lateritius
emeticus	purus	fascicularis
adustus	lacteus	callosus
torminosus	Fibula	areolatus
deliciosus	pyxidatus	stipatus
Voleumum	fragrans	atomatus
quietus	cyathiformis	gracilis
fuliginosus	ostreatus	semiovatus
piperatus	palmaris	fimiputris
vellereus	stypticus	vitellinus
exsuccus	prunulus	titubans
infundibuliformis	pluteus	disseminatus
β . major	pascuus	comatus
nebularis	Sowerbei	atramentarius
odoratus	gentilis	micaceus
dealbatus	violaceus	cinereus
grammopodius	glaucopus	niveus
pratensis	sanguineus	plicatilis
virginicus	iliopodius	glutinosus
psittacinus	aimatochelis	rutilus
conicus	aureus	

George Sparkes ; Bromley, Kent, May 14, 1844.

491. *Note on the Bardfield and Claygate Oxlips.* The correspondents of 'The Phytologist' appear to be still feeling an interest in the subject of the oxlips. I am induced therefore to point out a charac-

ter of the Bardfield plant (*Primula elatior*, *Jacq.*) which will probably afford a certain distinction between the latter and the spurious oxlips. In the cowslip and primrose, and all their varieties, a circle of scale-like glands surrounds the orifice of the tube of the corolla. These glands are absent from the *Primula elatior*. It is difficult to specify any other sufficient character, as I have seen exceptional instances to all the characters (taken singly) by which this plant is distinguished from the other two species in Mr. Babington's Manual; the specific character drawn out by that author being quite accurate, but not invariably applicable. While alluding to the oxlips, I take advantage of the opportunity of also again mentioning a peculiar variety of the primrose, spoken of in the first No. (Phytol. 9), although at the time I was not aware that I was writing a letter to be printed verbatim. The plant has remained in my garden since the spring of 1841, flowering freely, but without a single young plant appearing about it: this apparently countenanced the idea of its hybrid origin. To obtain better proof, I collected the seeds last year, and sowed them this spring in a flower-pot, kept well watered: the result is now seen in dozens of young plants, which so far tends to negative the supposition of hybridity. These young plants will not flower before next year. — *Hewett C. Watson; Thames Ditton, May 25, 1844.*

492. *Note on Cystopteris alpina and regia.* The long-mooted question respecting the distinction between *Cystopteris alpina* and *regia* appears to be in almost as unsatisfactory a state as it ever was. Francis treats it in a very summary manner (see his note, foot of p. 24). His conclusion, that we "are bound to conclude that when the the plant was vigorous, it took one character, and now that it is but struggling for existence, it assumes the other," seems extremely unsatisfactory. Last winter, some specimens came into my hands from Mr. Shepherd, of the Liverpool Botanic Garden, a gentleman whose long celebrity in the cultivation of ferns, renders his opinion of some weight. One was marked "*Cystea alpina*, Hook. Br. Fl. Switzerland;" the other, "*Cystea regia*, Bernh. Settle, Yorkshire. 1816." The extreme dissimilarity between the specimens striking me at first sight; and on further examining them with a glass, it being still more apparent, I was induced to enquire further of that gentleman respecting them. He said that he had gathered *C. regia* himself at Settle, twenty-eight years ago; he had brought live specimens with him from Settle, which plants he had cultivated ever since that time, but they remained in every way (through so long a period of cultivation) the same as those he had gathered in a wild state. The specimen he

sent me was a wild one, and agreed in every way with Sir J. E. Smith's description in 'English Flora.' Its larger, stouter, and every way fuller habit, being apparent at the first glance. *C. alpina*, Mr. Shepherd said was a Swiss specimen: it had been cultivated for some years by him from plants sent him by Mr. Otto. Now though *alpina* was a cultivated specimen, and had had full chance of becoming "vigorous" in the gardens, and although *regia* was wild—"struggling," "we are bound to suppose," for existence—in a place where it is most probable it is now extinct; yet the latter is by a very great deal the stouter of the two. Being but a novice in botanical research, and incapable of forming an opinion on so difficult a matter, I have been induced to refer the matter to you, hoping that after you have examined the enclosed specimens, you will let me know the result in 'The Phytologist.'—*James Lowe; Twycross, April, 27, 1844.*

ART. CCXXI.—*Proceedings of Societies.*

LINNEAN SOCIETY OF LONDON.

February 20, 1844. — The Lord Bishop of Norwich, President, in the chair. Read, a further portion of Mr. Griffith's memoir on Root-parasites and their allies.

March 5.—E. Forster, Esq., V.P., in the chair.

Wm. Hopkins Milne, Esq., was elected a Fellow.

Read, a paper "*On Spiranthes gemmipara*." By C. C. Babington, Esq., M.A., F.L.S., G.S., &c. Two specimens of this very rare plant were first found by Mr. James Drummond, in or about the year 1810, near Castletown, Bearhaven, in the county of Cork, "opposite the western redoubt, growing in a salt-marsh near the shore." One of these was communicated to Sir J. E. Smith, who published it in his 'English Flora' under the name of *Neottia gemmipara*, with a description furnished by Mr. Drummond. Within these few years the plant has been again discovered near to, but probably not in exactly the original spot, by Dr. P. A. Armstrong, who, on the 30th of September, 1843, conducted Mr. Babington and Mr. E. Winterbottom to the station, where they saw about twelve specimens, several of which had been destroyed by cattle, and all were in a rather advanced state of flowering. Mr. Babington has given a detailed description of the plant from the specimens then collected, and has subsequently identified it with specimens of Reichenbach's *Spiranthes cernua*, from N. America, in Sir W. J. Hooker's herbarium. It differs in some particulars from the other European species; the most remarkable discre-

pancy consisting in the connexion of all the sepals with the two lateral petals. The difference in habit is considerable from the great density of the spike, and the arrangement of the flowers in three spiral lines.

BOTANICAL SOCIETY OF EDINBURGH.

Thursday, April 11, 1844. — Professor Graham, President, in the chair. Donations to the library and herbarium were announced from Dr. Gottsche, Altona, Mr. W. C. Trevelyan, Mr. C. C. Babington, Mr. Parker, Mr. Ogilvie, Mr. Jackson and Mr. Evans.

The following papers were read : —

1. On four genera of Desmidiæ, by Mr. Ralfs, Penzance. In these papers, which were illustrated by beautifully executed sketches, fourteen species of this group are described, nine of which belong to *Euastrum*, two each to *Tetmemorus* and *Micrasterias*, and one to *Berkeleya*. Regarding the former of these, Mr. Ralfs makes the following remarks, which are worthy of attention from such botanists as may wish to study this minute though interesting family : — “The species of *Euastrum* are not well defined; plants of this genus vary greatly in form, and it is not unlikely that young fronds have been described as distinct. Whenever it is practicable, the frond should be examined in *four* different directions, namely, in the *front* or usual position, at the *side*, at the *end*, and by a *transverse* or *junction view*, after the segments have been separated.” And again, in describing *E. gemmatum*, he says, — “Whilst engaged in examining this species I was first struck with the advantage to be derived from the figure of the *transverse view* in the discrimination of nearly allied species. I have since obtained Meneghini’s Synopsis of this family, and find that he has extensively availed himself of it in forming his specific characters of this genus.”

2. Note on a Monstrosity of the Pistil of *Primula vulgaris*. By Mr. C. C. Babington, M.A., &c., Cambridge. The curious monstrosity described in this paper was sent to the author by Mr. J. H. Walton, of St. Bees College, in Cumberland. Flowers of the usual form and structure were found on the same root, with two flowers possessing the anomalous organ, which Mr. Babington describes as follows : — “Within the base of the corolla is situated a small fleshy cup, from the centre of which springs a cylindrical stem, capped with another shallow fleshy cup, having a wavy margin. An exposed conical placenta, covered with peltate ovules, is seated in the centre of the latter cup. Thus the true ovary is converted into a cup-shaped body, and the capitate stigma has become an open fleshy ovary.” The

description of this curious structure gave rise to some discussion, in which the President and Dr. Greville took a part.

3. On the Fructification of Cutleria, and continuation of the Marine Algæ of the vicinity of Aberdeen. By Dr. Dickie, lecturer on Botany in King's College. In this communication (in which the remainder of the olive-coloured Algæ, hitherto observed on the Aberdeenshire coast, are enumerated), the author discusses at considerable length the characters which have been assigned to various species by different writers on Algæ, and states his own views respecting them. He also notices the comparative paucity of the marine Flora of Aberdeenshire, ascribing the absence of the more delicate species, partly to the unsheltered nature of the coast, and partly to the influence of temperature; and says,—"Scarcely one half of the Melanospermous Algæ, enumerated in Harvey's Manual as occurring in Britain, are found here—the proportions being as 34 to 80."

4. On some British species of the genus *Cenanthë*. By John Ball, B.A., &c., Dublin. In this paper three species of *Cenanthë* are described as natives of Britain; viz., *C. pimpinelloides*, *Linn.*, *C. silaifolia*, *Bieb.* (*peucedanifolia*, *Sm.*), and *C. Lachenalii*, *Gmel.* The first is stated to be very rare, the author having only seen one specimen wanting fruit, which was gathered near Forthampton, in Gloucestershire, by Mr. E. Lees. He is, however, fully of opinion, that it is the true *pimpinelloides* of Linnæus and the continental botanists, and proposes that the plant should resume its place as a species in the English Flora; the last is stated to be the commonest of the group—he having received it from several parts of England, from the coast of Galloway, and from near Dunbar in Scotland. The paper concludes with the following remarks on the value of the characters of these species:—"The position and size of the tubers of the root are, I suspect, of doubtful constancy. Observation must determine its importance. The general disposition and proportions of the leaves are probably much to be depended on here, and throughout the whole order. The hollowness or solidity of the stem depends, I believe, almost wholly on the place of growth, and is of no moment. The petals vary somewhat in size, but scarcely in form, those of the outer sterile florets being always compared with each other. The form of the fruit seems not so constant as might be expected. The presence or absence of the incrassated summit of the pedicel I never have seen to vary."

Thursday, May 9, 1844.—Professor Graham, President, in the chair. The following papers were read:—

1. On the Difference between the Robertsonian Saxifrages of Ireland, and those of the Pyrenees. By Mr. C. C. Babington, M.A., F.L.S., &c. In this paper the author pointed out the differences which he had observed between the Irish species of *Saxifraga* referrible to Haworth's genus *Robertsonia*, and the corresponding plants of the Pyrenees. In a paper contained in the 'Annals of Natural History,' he had already shown that the Pyrenean *S. umbrosa*, the typical plant of the group, differs from the Irish form; but was not then aware that precisely the same differences existed between the *S. Geum* and *S. hirsuta* of these two countries. "The differences referred to," observes Mr. Babington, "are found in the form of the margin of the leaves, which may be correctly denominated '*crenate*' in the Pyrenean plants, but to which the terms '*acutely crenate*,' '*serrate*,' or '*dentate*,' must be applied when the Irish specimens are described." The paper was accompanied by drawings of the leaves of the species under consideration.

2. Contributions to British *Jungermanniæ*. By Dr. Taylor, Dunkerron. Communicated by Mr. W. Gourlie, jun. Glasgow. In this paper six species of *Jungermannia*, new to the British Flora, are described, viz., *J. nimbosa*, *Taylor*, MS., *J. curta*, *Martius*, *J. Thuja*, *Dicks.*, *J. rivularis*, *Nees*, *J. Dillenii* and *J. Aquilegia*, *Taylor*, MSS., with a minute diagnosis of each species.

3. On the genus *Staurostrum*, (*Desmidiæ*). By Mr. John Ralfs, Penzance. In this paper, which is a continuation of a series on the *Desmidiæ*, fourteen species are described, with an analysis of the genus, and drawings exhibiting the appearance of the frond in each species described, both in a front and end view.

4. A second paper by Mr. Babington was read—"On some British species of the genus *Œnanthe*." This communication was drawn up after the perusal of Mr. Ball's paper on the same subject, read before the Society at last meeting. The author agrees with that gentleman in believing that the true *Œ. pimpinelloides* of Linnæus is indigenous to England, he having received specimens of a plant nearly agreeing with Mr. Ball's description, from the Rev. W. L. P. Garnons, which were gathered in a "marsh between Weymouth and Portland Island." In reference to the other species, viz., *Œ. peucedanifolia*, *Smith*, and *Œ. silaifolia*, *Bieb.*, there seems still to exist considerable difficulty, which the author has not yet been able satisfactorily to explain, from the want of authentic specimens of Bieberstein's plant.

5. An additional note on the monstrosity of the Pistil in *Primula vulgaris*. By Mr. C. C. Babington. In the account given of this

curious monstrosity at the last meeting of the Society, no mention was made of the state of the male organs or the floral envelopes. Mr. Babington has supplied this desideratum in the present notice. The stamens were of the usual form, and in the usual position; and he now supposes that the two cups alluded to in the former notice, as occupying the place of the capsule, are formed by two whorls of carpellary leaves, and that the development of two in place of one, has deprived each of the power of becoming a perfect capsule, or of producing a style in the usual manner.

A donation to the library was presented from F. S. Cordier, M.D., Paris, being his 'Histoire et Description des Champignons.' David Walker, Esq., M.A., North Hill, Colchester, was elected a non-resident Fellow of the Society.—*Edinburgh Evening Post and Scottish Standard*.

BOTANICAL SOCIETY OF LONDON.

May 3, 1844.—J. E. Gray, Esq., F.R.S., &c., President, in the chair. Various donations to the library and herbarium were announced.

A specimen of *Barkhausia setosa* was presented by G. S. Gibson, Esq., which was stated to have been found by Dr. J. B. Wood, in corn-fields, at Withington, near Manchester.

A specimen of *Primula vulgaris*, bearing three flowers upon a long, slender scape, was exhibited from Mr. D. Stock, of Bungay, as an example of the plant usually (though incorrectly) called *Primula elatior* by the botanists of that part of England. Having been enclosed in a post letter before drying, it was too much shrivelled to admit of its being assigned quite certainly to the variety *caulescens* of the London Catalogue. The variety *intermedia* of the same Catalogue usually bears ten or twenty flowers on a scape, and approximates to the cowslip in its deep colour and short pubescence.

A monstrosity of *Primula vulgaris* was also presented by Mr. D. Stock. In this specimen, a short peduncle terminated in a funnel-shaped calyx, formed by the adhesion of fifteen sepals, and enclosing two distinct corollas; the limb of one corolla being divided into eight lobes, that of the other into seven.

Read, "A Synoptical View of the British Fruticose Rubi, arranged in groups, with explanatory remarks, (Part 2)," by Edwin Lees, Esq., F.L.S.—*G. E. D.*

MICROSCOPICAL SOCIETY OF LONDON.

May 15, 1844.—Thos. Bell, Esq., F.R.S., &c. President, in the chair.

Mr. Bowerbank called the attention of the Society to a minute species of *Conferva* growing between the lenses of an achromatic object-

glass, which he described as being chiefly composed of branching elongated tubes, containing molecular spherules at irregular distances, and accompanied with the appearance of moisture adhering to the tubes. Another form was that of a series of molecular spherules touching each other, and presenting a moniliform appearance, this he attributed to the escape of those bodies from the tubes, and suggested the probability that this mode of arrangement might be due to an extension of the principle of polarization. He also produced some objects mounted on glass, under talc, in which the paper covering them had been *pasted* down, and in which a *Conferva* of an exactly similar appearance was seen branching over the objects, and greatly obscuring them. Mr. Bowerbank also exhibited an aquatic larva, very commonly found in the water with which London is supplied, in which the circulation is seen in a very beautiful manner, as well as a peculiar contraction of the muscles of the limbs, which, in some instances, appear to be composed of a single fasciculus, and in contracting are simply bent at intervals, without exhibiting an appreciable swelling of the fasciculus of ultimate fibres.

Mr. J. Quekett made some observations on the cause of the iridescent surface of glass which has been for some years either exposed to the atmosphere or buried in the earth. This was clearly shown to be the result of a decomposition of the surface of the glass, which is thus split up into a vast number of exceedingly fine and close lines, intersecting each other in every direction, and thus producing the effect described.

Some observations were made by Mr. E. Quekett, on the crystals contained in the cells of plants. He stated that in most cases the position of these bodies is accidental or uncertain, but in some instances, as in the cells of the covering of the seed of the elm, the crystals are regularly disposed in all specimens, and appear to be adherent only to the walls of the cells that touch each other in the horizontal plane. Mr. Q. made further observations on the supposed use of these bodies in the vegetable kingdom, and was of opinion, as Professor Bailey of West Point, New York, had stated, that these bodies contributed by the decay of the plant, as well as the vegetable matter, to furnish materials for the support of future plants. The enormous quantity (sometimes 80 per cent. in the dried plant), and their composition, which is oxalate of lime in most cases, seemed adapted, by the decomposition of the oxalate into carbon and oxygen, to furnish two important elements of vegetable structure. — *J. W.*

THE PHYTOLOGIST.

No. XXXVIII.

JULY, MDCCCXLIV.

PRICE 1s.

ART. CCXXIII.—*Further Remarks on Botanical Classification.*

By PHILIP B. AYRES, Esq., M.D.

Thame, June 19, 1844.

SIR,

I am fearful that both your readers and yourself will desire that our discussion on botanical classification, and the relative merits of the systems now in use, should come to an early termination; and in this desire I, for one, heartily concur: not, however, that I am afraid of my opponents, or ashamed of the line of argument I have employed; but that I think the pages of your journal might perhaps be more profitably filled. Nevertheless, should Mr. Edmonston or Mr. Forster prolong the controversy, I may promise them to be found at my post.

The last letter from Mr. Edmonston (Phytol. 977) was unfortunately written before he had seen my communication in reply to Mr. Forster (Id. 960); and having been so, the main argument of my last letter on the nature of species was left untouched, or at the most but slightly glanced at as a transcendental or ultra-metaphysical notion or set of notions. But whether it be transcendental and ultra-metaphysical or not, is a matter of little importance, since to answer the purpose of Mr. Edmonston, it must be *disproved*. Much therefore of Mr. Edmonston's renewed disquisition on the nature of species, must fall to the ground, since he has taken no notice of the *species* of minerals, to which the term is fully as applicable as to plants and animals. Even Linnæus himself applied the term to minerals in his 'Systema Naturæ,' and I suppose Mr. Edmonston will not call his authority in question!

Now if *species* be applicable to minerals, the power of generating their like is, as I have before shown, merely one of the characters on which the induction is founded; and the attempt to reduce my argument to absurdity, by bringing forward hybrids between genera, orders and classes, becomes completely nugatory, for the absurdity of supposing hybrids between *species* of minerals, is most palpable!!!

But further, if Mr. Edmonston will give the matter a moment's con-

sideration, he must see that the production of hybrids between individuals of different genera, orders and classes, is rendered impossible by the difference of the structure of such plants preventing fecundation; only those plants and animals that most nearly approach each other in structure, being capable of engendering together. But it is stated on high authority, that hybrids have been procured between individuals of different genera. Thus Treviranus describes a hybrid between *Campanula divergens* and *Phyteuma betonicæfolia*; Gaertner, one from *Convolvulus sepium* fecundated by *Ipomœa purpurea*, from *Datura lævis* and Metel fecundated by the henbanes and tobacco, from *Glaucium luteum* fecundated by the poppies, &c.; Wiegmann also obtained hybrids from *Vicia faba* fecundated by *Ervum lens*, and from *Pisum arvense* by *Vicia sativa*; lastly, Knight fecundated the almond with the pollen of the peach.*

Mr. Edmonston has admitted, in his former communication, that genera, orders and classes are pure abstractions, for he has said that Nature only creates species; but we have here two of these abstractions (in a certain sense) copulating and bringing forth hybrids. What has now become of his argument derived from hybridity?

But Mr. Edmonston further says; "It is obvious to every unprejudiced mind, that Nature has created individuals having certain common peculiarities which no other induction from individuals possesses, and to these we give the name of species." I am afraid that this is as unintelligible to me, as my statement of the two senses in which groups are natural appears to be to Mr. Edmonston; but coupling it with the following sentence from Mr. E.'s letter, we shall find that even he allows, after all, that "*species*" is an induction or abstraction, for the terms are synonymous. "The word *species* implies a congeries of individuals having certain common peculiarities and distinctions; and when we say that Nature creates *species*, we mean that she creates individuals having the properties which we attribute to the abstraction — species." This settles the question as regards *species* between Mr. Edmonston and myself; and unless Mr. Forster has something more to bring forward on the subject, the matter must be considered as finally adjusted, for Mr. Edmonston has fully, but probably unintentionally, admitted all that I could desire. I certainly did not expect to proselytize him so quickly, and I congratulate him on arriving at the only sense in which the term is applicable to the three kingdoms of Nature.

* DeCandolle, *Physiologie*, tome ii. p. 703.

Mr. Edmonston has surely mistaken my meaning when he puts in my mouth the statement that "all our groupings have actually an existence in the scheme of Nature." I have merely affirmed that the capability of being thrown into such groups, is a powerful argument for the existence of a plan or scheme in the Divine Mind anterior to the creation of natural objects, and that our groups are nothing more than an attempt to approximate to the Divine plan or order. "Order is Heaven's first law," says Pope, in the double character of philosopher and poet.

The groups in all systems are metaphysical; they are creations of the mind of man, but they are natural in proportion as they place in immediate proximity those objects that most closely resemble each other, or, in other words, have the strongest affinity. But from what I have said above, it is impossible that these groups should have a positive existence in external nature; we can have no personification of any one group; classes, orders, genera, species, are entirely mental. If indeed they are mental, if no personification of them can be shown (and such cannot), then are they entirely metaphysical, and being metaphysical, why taunt me with being "ultra-metaphysical," when the subject-matter of our discourse comes within the domain of that science, and of that alone?

From what has been said above, I would undoubtedly answer Mr. Edmonston, that inasmuch as the groups of both systems are creations of man's mind, they are both artificial, but that, as throwing together those plants that bear the greatest resemblance to each other, the natural system approximates most nearly to the plan which I have supposed to exist in the Divine Mind.

Mr. Edmonston's analysis of Ranunculaceæ does much more than he intended, for it totally destroys the characters of the order. He has rejected all the characters except those derived from the seed, and I complete the work of destruction, by stating that there are numerous orders that possess solid albumen and seeds without arillus, in common with Ranunculaceæ. I am afraid that even the veriest sticklers for the old system will not go so far as Mr. Edmonston, and pronounce Ranunculaceæ a nonentity! But I object to Mr. E.'s plan of examining the characters of natural orders, *in toto*. I maintain that the whole of the characters must be retained, and that the *exceptions* must not be made the rule. There are a very few genera in which exceptions to those characters occur, and these, approximating to other orders in their characters, form those oscillatory groups that

Mr. Edmonston professes himself unable to discover. Now as to these oscillatory groups, it is a curious circumstance that Mr. Edmonston has kindly furnished me with an excellent illustration of an oscillatory group, in the succeeding page to that in which he declares he has never been able to find one! The genus *Detarium* has, it appears, the icosandrous stamens and drupaceous fruit of *Amygdalaceæ*, with the compound leaves of *Leguminaceæ*, and is hence intermediate between the two orders, partaking the characters of each, and intimately connecting them. Both these orders are extremely natural, so much so, that a person completely ignorant of the principles of Botany would be able to group the species composing them together, as bearing the greatest possible resemblance to each other. Now the genus *Detarium* forms the oscillatory group connecting *Amygdalaceæ* with *Leguminaceæ*; belonging strictly to neither, but common to both: and hence this genus may be placed by one botanist under *Amygdalaceæ*, by another under *Leguminaceæ*, according as certain characters are valued by each. But because *Detarium* resembles *Amygdalaceæ* in every particular save its compound leaves, compound leaves form the only distinctive character between *Amygdalaceæ* and *Leguminaceæ*. This, I submit, is an example of false logic, of the drawing forth a general rule from an exception; the making the exception the rule!!!

Every one is capable of classing the common leguminous plants of our gardens and fields into one group; of seeing that the pea and bean and vetch are closely related to each other. Now the fact that the veriest ignoramus is capable of such classification shows that such relationship exists. Now on turning to Withering's Arrangement, I find all the leguminous plants very snugly ensconced under the sheltering wings of *Diadelphia Decandria*; but turning to the descriptions of the genera, I find that *Genista*, *Ulex*, *Ononis*, *Anthyllis* &c. are really monadelphous, while *Pisum*, *Orobus*, *Lathyrus* and others are as truly diadelphous. Again, any moderately intelligent person would select the grasses from any confused heap of specimens, because their resemblance is most striking; but on the Linnæan system this most natural order must be broken up. *Anthoxanthum* is in the same work placed in *Diandria*, while the remainder form part of *Triandria*. But in truth the grasses form part of the following Linnæan classes; *Monandria*, *Diandria*, *Triandria*, *Tetrandria*, *Hexandria*, *Monœcia* and *Polygamia*. This, then, is the exactitude and certainty of the Linnæan system!!! Has it really so great facilities for the detection of species? Suppose a person, who is simply acquainted with

the characters of the Linnæan classes and orders, were to find a monœcious or polygamous grass, would he find it ranged under Monœcia or Polygamia? Two examples have thus been given of natural orders founded by Linnæus himself, obvious to every sagacious mind, which under this arbitrary artificial scheme are distributed through some half-dozen classes!! Let no more be said of the certainty and infallibility of the artificial scheme!

Speaking of the natural system, Mr. Edmonston gives us the two following passages in his last letter, to a comparison of which I wish to draw the attention of your readers. "What a combination of disjointed things — nay, not only disjointed, but a system affected with *fragilitas ossium*, where every bone is broken, and nothing to be seen but here a fragment and there a fragment, a little of everything and nothing complete! Can such a dismembered system, such a collection of debris, be of any real practical use? I should say, No!" But now turn over a leaf, and the following passage, so admirably in unison with the above, meets your view. "Let it be borne in mind that by these remarks I do not mean to say that the natural system is or ought to be thrown aside; let it be studied in its proper place, and it will be productive of much and lasting benefit. It can scarcely be otherwise, since it bears the impress of the great minds of a Jussieu, a Brown, a DeCandolle and a Lindley, [and I would add, which Mr. Edmonston forgets, a Linnæus]; but let it not be foisted forward where it can only disgust and perplex." What! — a combination of disjointed things, a system affected with *fragilitas ossium*, a fragmentary mass, a little of everything and nothing complete—of much and lasting benefit, and bearing the impress of so many and great names!!! Surely there must be some mistake here; such fragmentary systems are not usually the productions of great minds!! Did Linnæus project a fragmentary system, after and in preference to his own primary and more perfect system? Mr. Edmonston has forgotten himself.

A few words on a point I have left unnoticed at the commencement of Mr. Edmonston's letter, and I have done. I have called the Linnæan system a mere index (but a valuable one) to plants, and this seems to have given great offence to the followers of that school. In examining this question, we must bear in mind that the species and genera are common to all classifications; these are agreed upon by all; the difference between the rival systems exists in the higher groups alone — the classes and orders. Now if we confine ourselves to these higher groups, what do we learn of a plant by the Linnæan system? Simply the number and position of the stamens and pistils

— no reference being necessarily made to other parts of the plant. Now this seems to me very like the A, B, C of an index. But in the natural system, the whole plant must be examined before a decision can be pronounced as to the order to which the plant belongs, and thus passing in review the whole structure of the plant, much more knowledge of it must be gained than by merely examining the stamens and pistils. It is true, that in descending to the genera and species, the whole plant will be examined, but this has no reference to the particular system.

In what I have hitherto said, I have not depreciated the Linnæan system below its proper level. I have admitted its great utility in furthering our primary studies of plants; but I deny that it is an arrangement that will satisfy a philosophical mind. If it could have done so, how was it that Linnæus himself propounded a "natural system"?

I must admit that there is considerable difficulty in comprehending the natural system without assistance; but those who have heard Professor Lindley's lucid demonstrations of that system, will acknowledge that it is of all systems the most philosophical.

I fear that in this and the foregoing communications, I have used many repetitions, but I have endeavoured to avoid them as much as was consistent with the full elucidation of the subject.

I am, Sir,

Your obedt. Servant,
PH. B. AYRES, M.D.

To the Editor of 'The Phytologist.'

ART. CCXXIV.—*Explanations of the 'London Catalogue of British Plants.'* By G. E. DENNES, Esq., F.L.S., Secretary of the Botanical Society of London.

THE editorial note appended to Mr. Sidebotham's letter (Phytol. 478), renders it expedient to offer some explanations about the 'London Catalogue of British Plants.' The comments of Mr. Sidebotham are mostly founded on misapprehension of facts. For instance, Mr. S. asserts that *Impatiens fulva* is held to be an introduced species, "because not found in one of the twenty" local Floras consulted. The fact is not so. The number of local Floras in which the several species occur, is given only in indication of their comparative frequency and diffusion; and without reference to the distinction made between

native and naturalised species. *Impatiens fulva* was originally introduced to this country from America, as any botanist would have informed Mr. Sidebotham.

All will concur with the editorial wishes for uniformity of nomenclature, so far as it can now be obtained. The names in works already printed cannot be changed; and just so far as new works introduce new names, so far is the departure from uniformity increased. The sparing adoption of newly invented names, is a characteristic feature of the London Catalogue; and there is only one instance, in the whole Catalogue, of a change in the name of a species, to wit, *Glyceria loliacea*, which shall presently be accounted for. In every other instance, (one or two errors of the press or pen excepted), the authority is given for the species, which shows the name to be one previously in use. The London Society, thus, cannot truly be accused of making extensive changes in nomenclature. All that was done, consisted in the selection of one from among the various names already applied to the same species by different authors. Individual botanists may think that they could have made a better selection of names; but this is a matter of individual opinion or self-complacency.

In selecting the names, the leading rule was that of taking the best known name, although, in several instances, this rule was allowed to yield to other considerations. Thus, it was a question whether preference should be given to *Carex recurva*, as the name best known to English botanists, or to *Carex glauca*, as the name best known to the botanical world in general; and the latter was adopted, because priority was in its favour, and not much confusion was likely to arise from its use. On the other hand, while *Carex Goodenovii* was correctly substituted for *Carex cæspitosa*, this latter name was not substituted for that of *Carex stricta*; because, to take a familiar name from one species, and then give the same name to a different species, seemed the most certain mode of causing error and confusion. A similar reason operated against the name of *Equisetum fluviatile*; although, it is allowed, that Mr. Newman was correct (according to strict rule) in making this transfer of the name from one species to another. But the rule of priority is valuable only in its tendency to prevent confusion, and where strict adherence to it would increase confusion, there seemed sufficient reason for the departure from it.

Glyceria loliacea is a troublesome sort of plant, which comes near *Triticum* in technical character, while it agrees better with a section of the Linnæan genus *Poa*, in general habit. In Steudel's *Nomenclator* nine different names are recorded for it, and others could be

added. Hudson united it with the other Poas, under the name of *Poa loliacea*; and *Glyceria* being a section of the genus *Poa*, the plant in question is called *G. loliacea* in the London Catalogue. In the Edinburgh Catalogue, further subdivisions of the old genus *Poa* were adopted, and this plant was associated with other species of *Poa* or *Glyceria* (*Smith*) under the name of *Sclerochloa*. Thus, putting the two Catalogues in contrast, the increase of generic names was here made by the Edinburgh, not by the London Catalogue.

Without entering more into explanations relative to species singly, it may fairly be assumed, that the proper test of a publication like the London Catalogue, is to be found in its adaptation to the end for which it is published. This Catalogue is expressly stated to have "been prepared chiefly with the object of giving increased facility in the exchanges of specimens, regularly carried on between the Botanical Society of London and its individual members." Some probability that it is adapted to such object, is implied in the fact of its distinctive peculiarities having been suggested by a botanist, who has had many years' experience in the exchange of specimens, both at home and abroad, and who was the first to bring such printed lists into use for the purposes of these exchanges, many years ago. The most important of the peculiarities which distinguish the London Catalogue from all its predecessors, is the attempt to show the comparative scarcity of each species, by means of the local Floras; and it is supposed that few persons will deny some usefulness in this innovation.

Secondly; a distinction is made between species which probably can be obtained for exchange, and species which probably cannot be obtained; and he must be a botanist of small experience who has not found the inconvenience of a list which includes (without distinction) the names of many species of which it is impossible to obtain British specimens. Foreign botanists almost invariably ask for those species, and are disappointed when they receive a parcel without any of them.

Thirdly, the native and naturalized species are also distinguished; the usefulness of such a distinction being practically admitted by the authors of our descriptive Floras, who latterly have done the same. Useful though this be, every good botanist knows well that the distinction cannot always be made with confidence. Thus, Babington describes *Chelidonium majus* and *Impatiens Noli-me-tangere* as native species; yet Hooker marks the latter as a non-indigenous plant, and Henslow marks the former "possibly introduced by the agency of man." If Mr. Sidebotham can accomplish a task, only attempted by Smith, Hooker, Henslow, Babington, Watson and others, by all

means let him perform the same, and make a "perfect" list of naturalized plants.

The continuous numbering of the specific names has been objected to, (Phytol. 938). For an index to herbaria, in which each genus only had a separate cover, the editorial preference for generic numbers would be judicious. In a duplicate store on a large scale, it is found practically more convenient to have a separate cover for each species, with the numbers marked outside, for convenience of ready reference and arrangement; since botanists apply for species and varieties, not for genera.

The London Catalogue, like its predecessors, has faults, both typographical and authorial; and it has not the novelty which Mr. Sidebotham would seem to give it credit for. A well compiled (but anonymous) Catalogue of British Plants, in the natural arrangement, and with synonymes, was published some six or eight years ago; which is still in print.

G. E. DENNES.

ART. CCXXV.—*Varieties.*

493. *The Nomenclature of Ferns in the 'British Flora' and the 'London Catalogue of British Plants.'* In your present number (Phytol. 497) a passage occurs, which is calculated to convey a wrong impression respecting the extent of dissimilarity between the names of ferns in the Flora and Catalogue. The Filices and Pteroides (an abbreviation of Pteridioides — Fern-like) are grouped under twenty-two generic names in the Catalogue, twenty of which are identical with those in the 'British Flora.' Two other generic names are necessarily added to the twenty, in consequence of two genera in the Flora being subdivided into four genera in the Catalogue. Among fifty-seven specific names of the same plants in the Catalogue, forty-eight correspond with those of the British Flora. Of the other nine specific names, five belong to additional species (or varieties "raised to the rank of species") adopted from Mr. Newman and 'The Phytologist;' four only being changed names — *Trichomanes speciosum*, *Lastræa spinosa*, *Equisetum Telmateia* and *E. umbrosum*. The first of these four was adopted on the authority of Madeira specimens, collected and labelled by Dr. C. Lemann, which appear connected with both forms of the Irish plant (*speciosum* and *Andrewsii*) through other specimens collected in the Azores. The remaining three names were taken up on the faith of Mr. Newman's investigations, first pub-

lished by that author, as I think, after the 'British Flora' was out. Though I do not know upon what authority the reviewer (*loc. cit.*) has "fathered" the London Catalogue upon my "pen," it would now be useless to disavow any connexion between them. — *Hewett C. Watson ; Thames Ditton, May 28, 1844.*

494. *Bentall's Drying-paper.* I have tried the new paper manufactured by Messrs. Bentall of Halstead, for drying plants, by placing specimens of several kinds into it, and not again examining them until they became dry, and find that it is well deserving of commendation. The colours of the flowers and leaves are well preserved. I placed eight thicknesses of paper between each layer of specimens. This paper is fully as good as, if not better than, the "*chalk-paper*," employed here, which is so much esteemed as to have been sent to distant parts of the kingdom, and even to S. America and Australia. — *Charles C. Babington ; St. John's College, Cambridge, June 1, 1844.*

495. *Note on Primula elatior.* I must request permission to enter a strong protest against Mr. Newman's endeavour (*Phytol.* 996) to give a new name to this plant ; not from any objection to paying the honour due to Jacquin for discriminating a true species amongst these variable plants ; but in order to prevent the addition of an unnecessary synonym, and also because Jacquin is undoubtedly the first botanist in modern times (that is since the time of Linnæus) who distinguished the plant specifically, and had therefore a right to give it a name. The *P. veris* β . *elatior* (Linn.) may have been intended to include Jacquin's plant, as well as the umbellate plants which connect the cowslip and primrose ; but as Linnæus only employed the name to designate a variety, there was nothing to prevent Jacquin from giving it to a species. The question is not affected by Jacquin's belief or otherwise in the identity of his species and the Linnæan variety, for that is only an error in determining a synonym. The confusion of which Mr. Newman justly complains, is not caused by the name of *elatior* being used specifically ; but by many British botanists applying it to the "spurious oxlips" so often found in this country, and fancying that they are the *species* thus named. It therefore becomes necessary to call it "Jacquin's oxlip," or that of "Bardfield," until English botanists learn to distinguish the true plant from the spurious one. I trust to hear no more of *P. Jacquini*, Newman. It may be as well to add that Professor Henslow finds the *P. elatior* (*Jacq.*) in his parish of Hitcham, in Suffolk, from whence I possess specimens, by his kindness. — *Id.*

496. *Note on Anthyllis vulneraria*. Mr. Greenwood's note (Phytol. 1000) has led me to examine the flowers of this plant, and I find that on the Cambridgeshire examples they are monadelphous. One filament is free at the base and summit, but quite joined to the other nine throughout most of its length. I hope Mr. Greenwood will carefully re-examine his plant, and if it is really diadelphous, that he will allow me to examine a specimen of it.—*Id.*

497. *Note on Botrydium granulosum*, Grev. Most of the shallower ponds in this neighbourhood have become dry from the long want of rain to replenish them, and this circumstance has brought to view the above curious little algoid plant, which I have often looked out for, but could never before meet with. Walking with a friend from Warwickshire along the Henwick road near Worcester, the bed of a little pond opposite Henwick farm attracted our notice, as it appeared almost as if covered with hoar frost, though on the morning of the 3rd of June, and as we trod on it, our ears were surprized with a crackling as if of icy particles. On stooping down, however, I found that the whole bed of the pond was occupied by an aggregated growth of *Botrydium granulosum*, Grev., the rupture of whose globules caused the noise we heard, and the frosty appearance presented to view I found was occasioned by innumerable *farinose granules* that densely covered the exterior of the green spheroidal vesicles forming the plant. These *exterior* granules seem not to have been noticed by observers, though very conspicuous, unless Sir W. J. Hooker alludes to them in his account of the *Botrydium*, where he says that "the membranous coat has *internally* a number of small granules," (Brit. Flor. ii. 321). When the vesicles collapse and become cup-shaped, they then indeed appear superficially internal, but they cover all sides of the globule before the fluid within it is spent. The size of the green spherical vesicles is subject to great diversity, as in all globular structures, being very minute where they are crowded in their growth by pressing upon each other, averaging generally the size of a mustard-seed; but when standing singly, nearly double that size, or as large as a currant. They have rather a tough skin, for it requires some degree of pressure to burst them by the hand, though of course breaking, with a crackling noise, beneath the tread. In general, the vesicles collapse without bursting, though when forced to do so, or when pricked with a needle, the included fluid is diffused externally, the skin sinks down, and the plant presents the appearance of a *Peziza*, or where there are many together, like the cells of a wasp's nest upon a small scale. Having at the time only a pamphlet to put my specimens in,

they were rather pressed before I returned home, and by the next morning, all the globules had collapsed, and their contents having dried up, the residuum appeared in the form of a green powder diffused upon the paper — doubtless the fructifying sporules of the *Botrydium*. This reproductive economy seems not to agree very well with the filamentose *Vaucheriæ* with which the present plant is associated, but rather suggests a closer relation to the *Fungi*, or at least the *Nostochineæ*. Its appearance probably depends on meteoric circumstances, in consequence of which it is seldom to be met with, and its existence even under favourable coincidences is but of short duration. The exposed bottoms of ditches in the present dry summer may possibly reveal the *Botrydium* in various localities to the Cryptogamic botanist; and having been thus enabled to note it, and as, according to Hooker, “few localities are published,” I have thought it might be interesting to bring it forward again under the eye of the observer.—*Edwin Lees; Powick, Worcestershire, June 8, 1844.*

498. *Note on the habitat of Ceanothe pimpinelloides.* In the report of the proceedings of the Edinburgh Botanical Society (Phytol. 1005), I notice a statement by Mr. Ball, enumerating three British species of *Ceanothe*, and remarking, that *C. pimpinelloides* is *very rare*, the author having seen only one specimen, gathered by me at Forthampton, Gloucestershire. I should rather say the plant was of *uncertain occurrence* than very rare; as for three years that I resided at Forthampton, it was so plentiful in the two orchards adjoining Forthampton cottage, as to form no inconsiderable portion of the hay of those pastures, which are on rising ground, ascending towards some of the highest land in the parish, and the soil a dry, hard, red marl. I have not had an opportunity of inspecting the spot this year. Last season, the plant was very abundant in several meadows at Powick, where I am now unable to find a single specimen. These meadows were dry and hilly. I know nothing about *C. Lachenalii*, which Mr. Babington describes, though omitting *C. pimpinelloides*; but there is some discrepancy which requires correction, as to the habitat of the latter. This is stated by Sir W. J. Hooker, Smith, and I believe most if not all authorities, to grow in “salt marshes,” while *C. peucedanifolia* is said to be found in “fresh water.” This is certainly a mistake. I have never observed *C. pimpinelloides* except in inland places, on hilly, and often the *very driest ground* of the neighbourhood; while as constantly do I find *C. peucedanifolia* in *marshy* places, whether of fresh or salt water. Last year, when on the coasts of Devon and South Wales, I was very attentive to this cir-

cumstance; but the species growing in the littoral marshes there invariably proved to be *Œ. peucedanifolia*. The latter I also found, this spring, growing plentifully in a wet part of the island pasture called the Severn Ham, at Tewkesbury, Gloucestershire. The spherical knobs on the roots of *Œ. pimpinelloides*, extending some distance from the plant, are very characteristic when contrasted with the elliptical sessile knobs of *Œ. peucedanifolia*, and I have found them pleasantly edible. They are not represented in the 'English Botany' figure. It is indispensable to examine the roots, for the radical leaves of *Œ. pimpinelloides* soon wither, and then the plant, without very close investigation, can scarcely be distinguished from *Œ. peucedanifolia*.—*Id.*

499. *Note on Carex paradoxa?* While consulting Hooker's 'Companion to the Botanical Magazine' on another subject, a few days ago, I met with the following passage in Mr. Woods' interesting account of a 'Botanical Excursion in the North of England,' in 1835. As it relates to plants which have recently caused a good deal of discussion, I think it entitled to a place in 'The Phytologist.' Mr. Woods says: — "Rosa Doniana grows at the top of a woody bank a little above Croft, on the Yorkshire side of the river [Tees]; and near Halnaby, on the same side, there is a small strip of boggy ground, mostly covered with brush-wood, on the left hand of the road from Croft, which affords *Ranunculus Lingua*, and a *Carex*, which is perhaps a small variety of *C. paniculata*, but not forming dense tufts, and therefore in some degree approaching to *C. teretiuscula*. The beak also is not abrupt, as described in *C. paniculata*, but tapers gradually from the fruit. Hooker (Brit. Fl. ed. 3. p. 395) mentions a continental species, *C. paradoxa*, which is intermediate between these two. That species, however, is described as forming very large and dense tufts (see Gaudin, Fl. Helv. 6. 43), and therefore can have nothing to do with this plant. Some difficulty has arisen from the figure of *C. teretiuscula* in 'English Botany,' where the scales are altogether brown, whereas, according to Gaudin, *l. c.* the scales of *C. teretiuscula* in a young state have uniformly a whitish border. In my plant they have a pretty wide scariose margin." Which of the two plants can this be — *C. paradoxa*, which is now known to grow in another part of Yorkshire, or the variety of *C. teretiuscula*? Will Mr. Woods kindly examine his specimens, and favour the readers of 'The Phytologist' with the result. Or the plant may be still growing in the locality where Mr. Woods met with it, and may perhaps be found by

other botanists. — *Geo. Luxford* ; 2, *Ebénézer Row, Kennington Lane, June 22, 1844.*

500. *Flora of the Shetland Islands.* Our correspondent Mr. T. Edmonston, jun. has forwarded to us a prospectus of his forthcoming 'Flora of the Shetland Islands,' which is to be published by subscription. Mr. Edmonston has been so long and so honourably known as a zealous and successful investigator of the Natural History of these islands, and more especially of their Botany, that we deem it unnecessary to do more at present than to announce his intention of publishing the result of his researches in an accessible form.—*Ed.*

ART. CCXXVI. — *Notice of 'The London Journal of Botany.'* By SIR W. J. HOOKER, K.H., LL.D., F.R.A. & L.S., &c. No. 30, June, 1844. London : Baillière, Regent St.

IN a notice of the 'London Catalogue of British Plants,' in the June number of the 'London Journal of Botany,' we find some observations on the review of Mr. Newman's 'History of British Ferns' which lately appeared in our pages (Phytol. 945). These observations appear to require from us something in the shape of explanation ; we shall therefore, in the first place, lay before our readers the whole of the observations referred to, and then, in all due courtesy, proceed to offer a few remarks upon such parts as seem to be not entirely consistent with facts.*

Speaking of the 'Edinburgh Catalogue of British Plants,' the editor of the Journal proceeds : —

"Nevertheless, as being the fullest 'Catalogue of British Plants' extant at the time of the publication of the 5th edition of the 'British Flora,' the author of that work deemed it entitled to quotation among the synonymes, 'as one in which especial pains appear to have been taken to form a *complete* list of the native flowering plants and ferns of Great Britain.' This little compliment, paid to the labours of those who compiled the Catalogue, has been strangely made the subject of censure in a recent number of the 'Phytologist,' (a work not always distinguished by courtesy of style); where, after speaking of the 'Nomenclature' of Mr. Edward Newman, as employed in the first edition of his 'History of British Ferns,' and promulgated in 1839-40,—the reviewer assures us, 'there was a general denunciation of changes so radical and so complete;' but, after the appearance of Mr. John Smith's paper on the same subject, 'Botanists, who one month proclaimed the absurdity of Mr. Newman's inno-

* The editor thinks it right to state that he is not the author of the review commented upon in the 'London Journal of Botany.' It was written and sent for insertion by a correspondent, who has paid great attention to the British Ferns.

vations, were seen the following month bending the supple knee to the same innovations;’ and ‘Dr. Balfour and Mr. Babington, by adopting the alterations, were the means of disseminating them from John o’Groats to the Land’s End.’ It seems the author of the *British Flora* did not bend the supple knee to the innovations, and the reviewer proceeds: ‘But in the midst of its successful career, the new nomenclature met a most decided check in the publication of the fifth edition of Sir W. J. Hooker’s *British Flora*, wherein we were astonished to find the changes introduced by Mr. Newman, not only *fathered* upon the authors of the ‘*Edinburgh Catalogue*,’ but the new names given as synonymes, and *the old nomenclature restored in all its glory*.”—p. 290.

To the above passage is appended the following long foot-note.

“It is far from being our general intention to notice remarks made in *reviews* of Books: but the Editor of this Journal, as the Author of the ‘*British Flora*,’ must in justice to himself declare that he is not aware that he has in any way acted unfairly by Mr. Newman. He presumes by the expression of ‘*fathering* the changes introduced by Mr. Newman upon the authors of the *Edinburgh Catalogue*,’ it is meant to imply that he has given to those gentlemen a credit for names (‘a nomenclature’) which is due to Mr. Newman alone. But surely no one will consider that to be the case, who has seen the little explanation in the preface to the *British Flora*, (ed. 5, p. viii.). It was never meant to imply that the Editors of the Catalogue were the *authors* of those names: and really upon looking at the places among the Ferns where the ‘*Edinb. Cat.*’ is quoted, the difference of names is so trifling that it is marvellous how such a charge could, in fairness, any way be made. One would suppose that by ‘the old nomenclature being restored in all its glory,’ that the author had gone back to the days of Dillenius and Ray; but, so far at least as the *Edinburgh Catalogue* is concerned, the difference of names, ‘fathered’ upon the *Edinb. Cat.*, which Mr. Newman’s reviewer claims for him, and in the *British Flora*, amounts to these. In the latter work, the genus *Aspidium* of Swartz is divided into two sections; 1st. those species with orbicular involucre, fixed by the centre (*Aspidium*, Br.), and 2ndly. those with reniform involucre, fixed by the sinus, (*Nephrodium*, Rich, Br.) The first are called *Polystichum* in the *Edinburgh Catalogue*, while the latter are called *Lastræ*; and in the genus *Asplenium*, as defined in *British Flora*, 2 species (*A. Filix femina*, and *A. fontanum*), are, in the *Edinb. Cat.*, called *Athyrium*. *Cryptogramma* of Brown and Hook. is called *Allosorus* in the *Ed. Cat.*; *Blechnum boreale*, Sw., is called *Lomaria Spicant*, and *Trichomanes brevisetum*, Br. and Hook. is the *T. speciosum* in *Ed. Cat.* Now the whole of these changes (we are not discussing the merits or correctness of the names) no more originated with Mr. Newman, they are no more his original ‘nomenclature,’ which is declared ‘to be *toto cælo* at variance with that so long in use,’ than they did with the authors of the *Edinburgh Catalogue*. The genus *Polystichum* was invented by Roth in the year 1800, and is absolutely identical with *Aspidium*, as it stands in the *British Flora*; including both *Polystichum* and *Lastræ* of the *Edinburgh Catalogue*. *Lastræ* originated in M. Bory de St. Vincent in 1824, and was formed to include the *Polypodia*! *Oreopteris*, *Thelypteris* and *unitum*. Presl in 1836 altered the character, to make it comprise certain Aspidiaceous plants, banished all Bory’s species, and was the author of the names of the *Lastræ* as they stand in the *Edinb. Cat.* *Athyrium* also is a genus of Roth (1800), adopted (in part by Presl), and the species above mentioned are of the same antiquity. We are well aware that *Cryptogramma crispa*, Br. is the *Allosorus* of Bernhardt, (1806); but the *Cheilanthes odora*,

Sw. is the plant which Bernhardt seems to have had in view in constituting that genus; and Presl has not improved the genus by the heterogeneous species he has mixed up with it, and which have little in common with the plant in question. So long ago as 1810, Mr. Brown expressed his opinion that *Blechnum boreale* might perhaps be referred to his *Stegania* (*Lomaria*, Willd.); and in 1811, Desvieux named it *Lomaria Spicant*. Our view of the fructification differs from that of these authors, and we have not preserved the name of Swartz without stating reasons for it, and giving a figure, which in our mind, at least, confirms those views, (see Brit. Fl. ed. 5, TAB. X. f. 10.) With regard to Mr. Brown's name of *Trichomanes brevisetum*, we may here extract what is but just printed respecting it in the '*Species Filicum*,' p. 126, where the author expresses his regret that he was under the necessity of occupying so much space in his attempt to unravel the difficulties which have always attended the synonymy of this plant, and respecting which Sir Jas. E. Smith (whose writings on the Ferns the reviewer, in the '*Phytologist*,' treats with marked contempt), said, nearly thirty years ago, that 'few plants of almost any country have caused more enquiry, or more diversity of opinion, than this Fern.' Unquestionably the *T. speciosum* of Willd. is the same species as our *T. brevisetum*, though a native of Teneriffe; and, as such, the name has the right of priority over that of Mr. Brown; but after a most careful investigation of other specimens of *Trichomanes*, and especially the *T. radicans* of Swartz, from Jamaica, we must declare ourselves at issue with the reviewer in question, who, notwithstanding that 'Mr. J. Smith had labelled a var. of the Irish *T. speciosum*, lately discovered by Mr. Andrews, as *T. radicans*, Sw.,' nevertheless 'thinks Mr. Newman has exercised a sound discretion in keeping the name of *T. radicans* quite out of view.' The author of the '*Species Filicum*' has come to a different conclusion, and having satisfied himself of their identity, ventures to retain the name of *radicans*. It might be supposed that the reviewer was of the same mind when he says, (*Phytol.* p. 956), 'it was held to be impossible that a *tropical* plant should exist in Ireland.' He surely does not take Teneriffe and Madeira, the recorded habitats of *T. speciosum*, to be within the tropics. Let it be observed that Mr. Newman gives no authority for the genera *Polystichum* and *Lastræa* in his Synoptical Table of British Ferns, p. 6, but he informs us (p. 8) that these 'have not been employed by any previous writer on the British Ferns.'

"One word on another remarkable passage of the reviewer, who pronounces Mr. J. Smith's Arrangement of the genera of Ferns as 'perhaps the most profound and useful treatise ever presented to the Linnæan Society.' Knowing, as the Editor of this Journal does, the character of Mr. J. Smith, and his love of truth, he hesitates not to say that such an overstrained compliment will be far from gratifying to him. Of the merits of his Memoir, the Editor entertains a very high opinion, and of his judgment in discriminating types of genera or subgenera, and it has been held a privilege to afford publicity to that very paper in the pages of this work; and further, to give figures of Mr. Smith's new genera (see '*Genera Filicum*,' passim): but great as is his merit in the 'Arrangement,' now mentioned, it rises much higher in our esteem on account of the *candour* with which he speaks of his predecessor in the same line; and it detracts nothing from Mr. Smith's merit that Presl was his predecessor in these innovations, for the two writers worked wholly independently of each other. "I had nearly," says Mr. J. Smith, "completed my arrangement, when I received a copy of Presl's '*Tentamen Pteridigraphiæ*,' a work published at Prague in 1836, but not seen by me till 1838. That author's opinions so nearly coincided with mine, that it might seem

as if a communication of ideas had passed between us ; but, after allowing him due credit for his labours, I must still continue to differ from him in a number of important points ; yet in order to avoid adding synonymous generic names, I have revised my original ones, and in all cases, where Presl's character of his genera are conformable to my view, I have adopted his names.' "

In the following remarks we shall confine ourselves as much as possible to the plain *facts* of the case, without in general attempting any explanation of the reviewer's *opinions*. We will also endeavour to follow the order of the editor's strictures.

First, then, with regard to the "little compliment" said to be made the subject of the reviewer's censure. We do not clearly perceive in what way the simple statement of a fact can be construed into censure. That the payment of this "*little compliment*" has been in some degree censured in preceding pages of 'The Phytologist,' we are willing to admit ; but in the passage alluded to we must confess ourselves unable to discover the censure complained of. When the 5th edition of the 'British Flora,' was announced, the botanists of this country naturally looked forward to its appearance with a hope that the author would gladly embrace the favourable opportunity of raising the Botany of Britain to something like a level with the state of the science on the continent. This, the author of the 'British Flora,' from his eminent attainments in the science, his almost unequalled store of materials, and his exalted station, was certainly well qualified to accomplish, and was no more than the botanists of Britain had a right to expect from him. His labour, too, would have been rendered less onerous, from the publication of the 'Edinburgh Catalogue of British Plants,' "in which especial pains had been taken," not only "to form a *complete* list of the native flowering plants and ferns of Great Britain," but also (and this surely is a point of equal importance), "as far as possible to make the nomenclature of British plants correspond with that adopted by the best continental authors." And in endeavouring to effect this object, the compilers of the Catalogue were "guided in their amendments chiefly by the works of DeCandolle, Koch, Nees von Esenbeck, Kunth and Leighton." However, when the 5th edition of the 'British Flora' appeared, great was the disappointment of our botanists to find that very little more had been done in its preparation, than to prefix a Linnæan index or key, to adopt the natural arrangement for the body of the work, in place of that of the Linnæan artificial system which had been used in the preceding editions, and to add a few explanatory plates at the end :

in the Edinb. Cat." With reference to this passage we would ask, if Presl "banished *all* Bory's species," how it happens that *Oreopteris* and *Thelypteris* are retained, not only in the Edinburgh Catalogue, but also in Presl's own *Tentamen*? For in the latter, we find *Thelypteris* and *Oreopteris* holding the second and third places in his §. 2. *THELYPTERIS*. In his *Synopsis*, ed. 2, Mr. Newman gives Bory as the authority for the genus: while at p. 185 of his *History*, ed. 2, under *L. Thelypteris*, he states that "Botanists seem scarcely agreed as to the genus to which this fern should be referred. Presl places it in Bory's genus *Lastrea*; Schott constitutes a genus (*Thelypteris*) purposely to receive it, and gives to the species the name of *palustris*; and Sir W. J. Hooker, in the fifth edition of his 'British Flora,' makes it an *Aspidium*: thus we have three of the highest, as well as most recent authorities, completely at issue on the question."

Next with regard to *Athyrium*. The editor's words are these:—" *Athyrium* also is a genus of Roth, (1800), (adopted in part by Presl), and the species above mentioned [*A. Filix femina* and *fontanum*] are of the same antiquity." At p. 61, Mr. Newman says:—"In opposition to the views of many eminent botanists, I feel inclined to return the Lady fern to the genus *Athyrium* of Roth, which I think must also include the *Allantodia australis* of Brown. I doubt whether I can agree with Presl in placing *Asplenium Halleri* and *fontanum* in the same group."

With respect to *Allosorus*, the editor observes, "We are well aware that *Cryptogramma crispa* Br. is the *Allosorus* of Bernhardt, (1806); but the *Cheilanthes odora*, Sw. is the plant which Bernhardt seems to have had in view in constituting the genus;" Mr. Newman, "It [*A. crispus*] has by three eminent botanists been made the type of a new genus; viz. by Bernhardt, under the name *Allosorus*; by Desvieux, under the name *Phorobolus*; and by Brown, under the name *Cryptogramma*. The name I have adopted has the claim of priority."—p. 17.

And lastly, with regard to *Lomaria*: the editor says "So long ago as 1810, Mr. Brown expressed his opinion that *Blechnum boreale* might perhaps be referred to his *Stegania* (*Lomaria*, Willd.); and in his *Synopsis* Mr. Newman says of *Stegania*, "Apparently identical with *Lomaria*."

We have been thus particular in quoting parallel passages, in order to show that Mr. Newman was careful to give the authorities for the generic names employed by him. To this we shall presently return.

more especially, we fancy we discover such symptoms of unfair dealing, that we cannot let slip this opportunity of endeavouring to place the matter in its true light.

After enumerating the discrepancies between the Edinb. Catalogue and the 5th edition of the 'British Flora,' the editor continues : — "Now the whole of these changes, * * no more originated with Mr. Newman, they are no more his original "nomenclature," * * than they did with the authors of the Edinburgh Catalogue.* Now upon an impartial examination of the review, we cannot perceive that the reviewer anywhere claims for Mr. Newman the merit of having originated this "nomenclature," and certainly Mr. Newman nowhere claims it for himself, as we think we shall presently be able to prove, from the evidence kindly laid before us. by the editor himself.

With a few exceptions, the editor might have found nearly all that he has said on the authorship of certain genera, in the 'History of British Ferns' itself. For instance, he says that "The genus *Polystichum* was invented by Roth in the year 1800, and is absolutely identical with *Aspidium*, as it stands in the British Flora! including both *Polystichum* and *Lastræa* of the Edinburgh Catalogue." So far the editor; now for Mr. Newman. At p. 36 (ed. 1) of his History, under *Polystichum aculeatum*, he says, "This genus was established by Roth, and has been adopted by DeCandolle and Schott;" and the following passage occurs at p. 11, 2nd edition, "*Genus Polystichum*, Roth. Involucre attached by its centre. This genus includes all the species I have placed under *Lastræa*; it was first restricted by Schott to the congeners of Roth's typical species—*Lonchitis*." If now we turn to p. 166 of the 2nd edition of the History, we find a passage bearing a remarkable family likeness to the above quotation from the editor's foot-note. "The genus *Polystichum* was established by Roth in his 'Flora Germanica,' in 1800, and is so far synonymous with Swartz's genus *Aspidium*, published in the same year, that both included a long list of the same species."

The editor proceeds : — "*Lastræa* originated in M. Bory de St. Vincent in 1824, and was formed to include the *Polypodia*! *Oreopteris*, *Thelypteris* and *unitum*. Presl in 1836 altered the character, to make it comprise certain *Aspidiaceae* plants, banished *all* Bory's species, and was the author of the names of the *Lastræa* as they stand

* It will be seen on a reference to the original, that the sense and bearing of the passages here quoted are in no wise affected by the omissions.

Every one who has the pleasure of being acquainted with Mr. J. Smith, must entertain the highest regard for that gentleman, both on account of his extensive knowledge of Botany, the modesty by which his attainments are veiled, and his readiness to impart information. Mr. Smith's candour, too, in speaking of his predecessor's labours, is well known. Why, therefore, the word *candour* should have been printed in ominous italics, we cannot divine, unless, indeed it be intended to imply that there has been *a want* of candour on the part of some other party "in the same line." Now, coupling this with the preceding remarks on Mr. Newman, we must suppose that the intention of the editor has been to charge that gentleman with a want of candour in speaking of the labours of his predecessors. We fearlessly invite any unprejudiced individual to examine Mr. Newman's History of British Ferns, either the 1st or 2nd edition, and point out, if he can, a single instance in which Mr. N. has omitted to speak with candour of *his* predecessors "in the same line," or neglected to acknowledge the source from which any portion of his information has been derived. More than this, we again assert that Mr. Newman has in no case claimed the merit of having *invented* the generic names used by him in his History; and as a proof of his candour, we will conclude the subject by quoting from the 'History of British Ferns,' a parallel passage to that given by the editor from the writings of Mr. J. Smith.

"Mr. Smith, of the Royal Botanic Garden at Kew, has paid great attention to the venation of Ferns; he has prepared an essay on this subject, which I trust we shall shortly see in print. * * Mr. Smith having, in the most unreserved manner, communicated to me his own ideas on the subject of arrangement and nomenclature, I was delighted to find, that, with very few exceptions, our views were similar: in one or two instances I was obviously wrong, and in these instances I was too glad to have the opportunity of rectifying my errors by the aid of his superior knowledge of exotic genera. In a few instances we still differ, and in announcing this, I fear I shall be considered as pronouncing my own condemnation: still I venture to pursue my way, and 'by an earlier appearance in the literary horizon, give myself the chance of what the astronomers call an *Heliacal rising*, before the luminary in whose light I am to be lost shall appear.'

"In making out my list of genera I have followed no other rule than that of priority; and if, in any instance, I have departed from this rule, the departure has been entirely unintentional, and I shall

be glad to be informed, in order that I may take an early opportunity of correcting my error."—p. 3, 1st edition.

Surely there is no want of candour here ; whatever instances of it the editor may fancy he has perceived in other parts of Mr. Newman's writings !

In concluding these remarks, penned "more in sorrow than in anger," we must express our regret that the editor of the 'London Journal of Botany' should have taken a step which we cannot but look upon as one unworthy the position he holds among botanists. We considered it due to the editor of the Journal to give insertion in our pages to the whole of his strictures, and no less due to our readers and to ourselves, to make an attempt to clear up certain passages in the extracts, which might tend to convey erroneous impressions ; and having done this, we bid farewell to an unpleasant task.

ART. CCXXVI.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF LONDON.

June 7, 1844. — J. Reynolds, Esq., Treasurer, in the chair.

Specimens of *Oenanthe peucedanifolia* and *O. pimpinelloides* were exhibited, accompanied by notices of their distinctive characters and habitats ; by Edwin Lees, Esq., F.L.S. Much uncertainty and confusion having prevailed among British authors and distributors, in regard to the distinctions between these species, the views of Mr. L., founded on good opportunities for observation, are deserving of particular attention. The following condensed abstract will explain the conclusions formed by this botanist.

First.—*O. peucedanifolia* always grows in wet places, and is found both by salt and fresh water ; while *O. pimpinelloides* is found in dry ground only.

Secondly. — The characters derived from the form of the radical leaves, and the presence or absence of an involucre, will not prove sufficient to prevent confusion ; but the rounded tubercles upon the roots of *O. pimpinelloides*, will readily serve to distinguish that species from *O. peucedanifolia*, in which the tubercles are elongate and sessile.

Thirdly. — There is some difference in the fruit of the two species, though the materials in the possession of Mr. L. are not sufficient to state this with precision and certainty.

Mr. L. thus attaches the first importance to the form of the root, as a distinctive character, and the circumstance should instruct collectors to be mindful of the value of the root.

Specimens collected by Mr. L. afforded the principal reason for retaining *Œ. pimpinelloides* as a British species, in the London Catalogue, in preference to the adoption of Mr. Babington's change to *Œ. Lachenalii*; and one of the same specimens communicated to Mr. Ball, induced that excellent botanist to admit *Œ. pimpinelloides* as well as *Œ. Lachenalii* among the indigenous species, (*Phytol.* 1005). Three species, not two only, should therefore now be looked for, and the confusion and uncertainty may thus be removed.

Most of the specimens hitherto sent to the Society have proved quite useless through the absence of roots and fruit, but it is earnestly requested by the Council, that contributors will collect specimens, with root and fruits from as many localities as possible.

Some highly interesting examples of the Irish Saxifrages, belonging to Haworth's genus *Robertsonia*, were exhibited from Mr. Andrews, who had obligingly sent living plants as well as dried specimens. Two of the specimens were sent in record of the fact, lately doubted or denied by the accurate Mr. C. C. Babington, that the Pyrenean forms of *S. umbrosa* and *S. Geum* (with crenate leaves), are certainly native in Ireland; the specimen of *S. Geum*, indeed, being considered "even more obtusely crenate than Mr. Babington's figure (No. 8) from the Pyrenean plant." These specimens were collected "this year, from the mountains to the south of Brandon mountain, County of Kerry."

S. hirsuta is considered by Mr. Andrews to be a hybrid form between *S. Geum* and *S. umbrosa*, "as many of the varieties present characters leaning either more or less to the one species or the other." *S. elegans* is deemed by Mr. A. to be simply a variety of *S. umbrosa*. And after careful examination of the forms of *S. hypnoides*, he is now "satisfied that *S. affinis*, *incurvifolia*, *hirta* and *palmata* are all mere varieties, or indeed, barely deserving the name of varieties."

Read, "A Synoptical View of the British Fruticose Rubi, arranged in groups, with explanatory remarks, (Part 3)," by Edwin Lees, Esq., F.L.S. The paper was accompanied by drawings and specimens.—
G. E. D.

THE PHYTOLOGIST.

No. XXXIX.

AUGUST, MDCCCXLIV.

PRICE 1s.

ART. CCXXVII. — *Notes on British Mosses.*

By THOMAS EDMONSTON, Jun. Esq.



a. *Bartramia calcarea*, natural size.

b. Part of a stem, magnified.

c. Leaf, magnified.

d. Part of a stem of *B. fontana*.

e. Leaf of the same: both magnified.

f. Monostrophy of *Polytrichum juniperinum*.

g. The two calyptrae in a state of adhesion.

Bartramia calcarea, Bruch & Schimper.

FOR two or three years past additions have been made to our Muscology, with a rapidity truly surprizing, when we consider how tho-

roughly our mosses were believed to have been explored by the many eminent cultivators of that branch of Botany, in this country. That several of these so called *new* species will turn out merely varieties of well known plants, there can, I fear, be little doubt ; but that a very considerable proportion are really and *bona fide* good species, I am equally convinced.

Those two eminent botanists, Drs. Hooker and Taylor, the authors of the well known 'Muscologia Britannica,' a work which is deservedly held in high repute, differed so widely, and in many cases so judiciously, from the great majority of continental botanists, especially Bridel and Schwægrichen, regarding the limits of species and the value to be attached to distinctive marks, that for the most part British muscologists were content to take the species as they found them in the 'Muscologia,' without at all referring to continental works, in which, apparently, so many spurious species existed. Lately, however, the splendid 'Bryologia Europæa' of two German botanists — Bruch and Schimper, has been much consulted by our muscologists, and I fear we are likely to go just as far into the opposite extreme of *hair-splitting*. Undoubtedly, many of the plants described as distinct in the Bryologia, are mere forms of others, and occasionally the variations are so slight, that we cannot help regretting that such trivial characters are employed in so valuable a work. Yet still, in my opinion, and in that of many far better botanists, the authors of the work in question are entitled to great praise for their acuteness and discrimination in distinguishing many species undoubtedly distinct, but which had been hitherto confounded. The species above figured is one of these. It was, I believe, first clearly described as British by Mr. Spruce, in a very interesting paper on the mosses of Teesdale, in the 'Annals of Natural History,' xiii. 197. Having lately gathered most beautiful specimens of this splendid moss, on the banks of the Findhorn, near Darnaway, about three miles from Forbes, Morayshire, where it grows plentifully associated with *Bryum ventricosum*, *Marchantia hemisphærica*, and *Asplenium viride*, — I have been led to examine it more particularly, and the result is, that I think it a very distinct plant, and constant to its characters, which are abundantly sufficient to keep it separate from *Bartramia fontana*, with which it has hitherto been confounded. And I am induced to trouble the readers of 'The Phytologist' with a sketch and short description of it.

Bartramia calcarea, Bruch & Schimper. Stems four to six inches or more in height, densely caespitose, copiously branched with inno-

vations, and bearing the setæ, and frequently the withered capsules, of one or two preceding years, remaining upon the lower part of the stem. Leaves all falcato-secund, lanceolato-acuminate, sharply toothed in their upper half; nerve strong, reaching to the summit of the leaf. Seta frequently, but not invariably, lateral from the innovations. Capsule slightly inclined, globose (narrower and more curved after the plant has been dried); lid conical.

The capsules on my specimens, though fully grown, were too young to afford a satisfactory analysis of the peristome; neither was I so fortunate as to find the male flowers. In both the peristome and the leaves of the perichætia of the male flowers, characters are said to be found. I found the latter in fine state on *B. fontana* (*true*), and can verify Mr. Spruce's observations, as to the inner leaves of the perigonia in that plant being "obtuse, with an abbreviated or obsolete nerve;" the nerve in fact is scarcely discernible. In *B. calcarea* the leaves are said to be "all acuminate and nerved throughout."

The most apparent points of difference between this plant and the true *B. fontana*, are to be found in the leaves being broader (ovato-acuminate) and erecto-patent, imbricated on all sides (not at all secund); the capsule in *B. calcarea* is also more decidedly globose, and scarcely so inclined; it is also less deeply furrowed, and the whole plant is larger. These characters, and a glance at the figures, will, I think, convince the most sceptical of the great difference between the two plants. This difference is fully greater than between *B. pomiformis* and *Halleriana* or *ithyphylla*; and if the characters are not deemed sufficient to allow the plant to rank as a species, I am at a loss to conceive how *Andræa nivalis* is to be distinguished from *A. Rothii*, or *Dicranum falcatum* from *D. Starkii*.

Is *Bartramia falcata* of "Hooker in Linn. Trans. ix. 317," (referred to in the 'Musculologia Britannica') the same as this? I have not the work at hand to refer to, but if it be the same, I suppose the name will have to be changed.

Polytrichum juniperinum.

I am induced to send you the accompanying sketch (fig. *f.* p. 1033) of a specimen of *Polytrichum juniperinum*, which I found a few days ago. It presents the curious appearance of two calyptræ being joined together, so as to have the external appearance of one; *internally* however, as is shown at *g*, the calyptra appears distinctly two-celled, each cell containing a theca; so that there is not the least adhesion be-

tween either the setæ, or the capsules inclosed in this double calyptra, and the appearance is evidently occasioned by the two calyptræ growing together at an early stage. The capsules in this specimen were quite young.

T. EDMONSTON, JUN.

Aberdeen, May, 1844.

[Mr. T. Sansom (Phytol. 93) has described a precisely similar state of *Polytrichum commune*; and at the same time mentions a specimen of *P. juniperinum* in the same state, collected by Mr. W. Gardiner.—Ed.]

ART. CCXXVIII. — *Sketch of a Botanical Ramble to Tŵll dŵ, June 19, 1844.* By JOSEPH SIDEBOTHAM, Esq.

DURING a short stay at Beaumaris in June, I made an excursion among the Caernarvonshire mountains, taking the route through Bangor, along the Capel Curig road, through the Penryn slate-quarries to Tŵll dŵ, thence crossing the mountains to Llanberis, and the following day making the ascent of Snowdon, returning by the lakes and through the Llanberis quarries.

Having been unsuccessful in one of the objects of my journey, viz., to procure *Lloydia serotina*, from its inaccessible situation, I determined on a second excursion. A friend from Bangor accompanied me. We took a conveyance as far as the Penryn quarries, having previously agreed with one of the workmen to accompany us, and to bring a rope. The morning was not one of the most promising for a botanical expedition, the mountains being completely hidden by a thick mist, while occasionally there fell a little rain. Nothing particular occurred during our walk along the road. *Allosorus crispus* was very plentiful on the walls, and we saw plenty of *Saxifraga stellaris* on the wet rocks.

Tŵll dŵ is situated to the right of the road, just at the commencement of Llyn Ogwen, a large lake which borders the pathway on the left hand. Here commenced our ascent, which lay over fragments of rock and heathy ground, abounding in *Lycopodium Selago* and *alpinum*. In a short time we reached Llyn Idwel, a lake of considerable extent, the shore of which was lined with fragments of *Isoetes lacustris*, and the bottom is in some parts covered with it, growing intermixed with *Lobelia Dortmanna*. *Subularia aquatica* also grows here in plenty; but we did not find any in flower, being a little too early in the season.

On the neighbouring rocks was abundance of *Andræa Rothii*, in fruit, with *A. alpina* in smaller quantity; also *Grimmia ovata*, *Anicetangium ciliatum*, and several species of *Trichostomum*: scattered here and there were *Carex dioica* and *Splachnum sphæricum*. We did not stay long in this place, as the rain began to descend rather heavily, but made the best of our way along the shore of the lake, and up the rugged side of the mountain to Twll dû.

On the occasion of my previous visit, I ascended the course of a mountain stream, and gathered the following mosses upon the rocks which bordered it. *Gymnostomum fasciculare*, *Weissia acuta*, *Glyphomitron Daviesii*, *Bryum crudum*, *B. julaceum*, *B. ventricosum* and *B. Zierii*, with many others of less note. The rocks on our way up the mountain side were covered with the beautiful *Silene acaulis*, *Saxifraga hypnoides*, *stellaris* and *oppositifolia*, in fruit, *Oxyria reniformis* and *Asplenium viride*. Twll dû is an immense chasm or cleft in the mountain, the sides of which are perpendicular. It appears to have been formed by the long-continued action of a stream, which runs from a small lake above, called Llyn y cwn. At my first visit, I penetrated this cleft till I reached an immense block of stone, which completely chokes the passage, rendering further progress next to impossible. As our present object was to gain the top as soon as possible, we turned to the left on reaching the chasm, and so ascended, keeping close to the wall of rocks.

On these rocks we gathered *Trollius europæus*, *Thalictrum alpinum*, *Rhodiola rosea*, *Arenaria verna*, *Gnaphalium dioicum*, and a *Saxifrage* which I suppose to be *S. cæspitosa*; *Hypnum Crista-castensis* and *Neckera crispa* grew at the base, but we found no fruit. On reaching the summit, our friend the quarryman took off his load of rope, to reconnoitre the place. I had to act as guide, being the only one of the party who had visited the place before. We first went to the channel where the little stream leaps over the rocks into the profound abyss. From this place we could see plenty of the *Lloydia serotina* growing on the face of the precipice, above the large block of stone. There was one specimen bearing two flowers, a yard or two from the waterfall, almost within reach. I had seen the same specimen before, and wished much to gather it, but the attempt would have been very dangerous, from the friable nature of the rock. Fortunately I saw another, which, after a little climbing, I managed to obtain. We then returned to the rocks immediately above the precipice, where the quarryman fastened the rope round his body, and began the descent, having first given us strict injunctions not to let go our hold.

He returned however almost immediately, with the unwelcome news that the rope only reached a few feet over the brink of the precipice ; it should have been at least ten yards longer. This was mortifying : but *ne cede malis*, thought I ; so after a short consultation, we agreed to attempt a footing lower and nearer the precipice, and presently fixed on a small ledge of rock at the brink, where it was possible, by a little clearing from debris to place our feet. From this point we lowered our friend John, who soon reappeared with some specimens of the precious plant in his mouth, and a few others in his hat.

The mist had now cleared away from the mountains, and we went to Glyder Vawr to search for *Woodsia Ilvensis* ; in this we were unsuccessful, although possessing plans of the district, with which my friend Mr. Roberts of Bangor had favoured me, embracing even the actual rock upon which he and Mr. Borrer had gathered it in plenty. Nothing else occurred particularly worthy of note, but I may observe that there was plenty of *Juniperus nanus* coming into flower, and a little *Splachnum mnioides* about Llyn y cwn. JOSEPH SIDEBOTHAM.

Manchester July 10, 1844.

ART. CCXXIX. — *Further Remarks on Carices.* By S. GIBSON, Esq.

THE object of this note is to prove that my *Carex pseudo-paradoxa* does not really belong to *C. teretiuscula*, as has been advocated by Dr. Wood and other botanists.

Controversy is of great value in Botany as well as in the other sciences, as it has always a tendency to lead to further researches, and the facts which result from them often tend to the development of truth. Had my former remarks upon these plants been generally admitted, I should probably have remained satisfied ; but the objections and doubts that have been raised against it, have led me to a very detailed investigation of the plants in question ; and the result is that my former opinion on the subject is still unshaken.

But here I may observe in regard to the term, that it is a matter of no moment with me whether they be called species or varieties, since I know that it is not in the power of man to tell what a species is.

All that I shall here attempt to prove is that such characters as I have pointed out do really exist in the plants.

And before I make any attempt to do this, I will just say that my remarks will (unless otherwise expressed) be limited to those speci-

mens which were sent to Mr. Babington* by Dr. Wood, marked "Seaman's Moss-pits, Cheshire,"† and those referred to by our editor (Phytol. 811), as he tells us he received them from the Dr. I confine myself to these specimens, because Mr. Luxford's history of the plants in question is a very unsatisfactory one, inasmuch as it alludes to his having received the plants from persons who have not been very particular in sending the disputed plant when they have been asked for it.

Mr. King, of Lane-house, near Halifax, asked Mr. Sidebotham (one of the parties referred to) for my *C. pseudo-paradoxa*, and he sent him specimens under that name. Mr. King, on receiving them, finding them not to agree with the description I had given of it (Phytol. 778), came and desired me to show him my specimens; this I did with pleasure, and he, the moment I opened the paper, pronounced them very different from those he had received from Mr. Sidebotham. Another instance of this gentleman's negligence will be exemplified by the following quotation, which is from one of his letters to me, dated January 11, 1844:—"Mr. Babington wrote to me for ripe fruit of the *Carex*, and I sent him some of the *teretiuscula* by mistake."

I will now turn to our editor's note, (Phytol. 811); and the first thing I shall notice is the following passage. "We have now before us under the microscope, the fruit of the disputed plant, of *C. teretiuscula*, and of *C. paniculata*, all in a mature state." By this and what follows, I understand the reference to be to the perigynium only. Allowing then that there is a striking difference in the fruit (perigynium) of these two plants, I hope that I shall not be thought presumptuous if I just see how these differences have been pointed out by persons who have written on the subject, and attempted to describe them. Sir W. J. Hooker (British Flora, ed. 5), speaks of the fruit of these *two plants* as having their beaks bidentate, he says nothing of the one being more so than the other. He also says, on the authority of Dr. Boott, that the winged margins of the fruit of the *teretiuscula* are *SERRULATE*, and that those of the *paniculata* are *SERRATED*; and he speaks of them *both* as having a central, and sometimes winged line along their beaks, on the convex side of the perigynia. Our editor tells us (Phytol. 812) that the *paniculata* has a *FRINGED* membrane upon the

* *At my request*, that gentleman favoured me with the specimens now alluded to; and I now take this opportunity of thanking him for the kindness.

† If there be "no such thing as secrecy" in the case, I now say with *candour*, that I should take it as one of the *greatest of favours* if some of the parties who are acquainted with the locality, would give in 'The Phytologist' such a direction as would enable a stranger in that neighbourhood to find the above mentioned place.

beak of its fruit, and on the other hand, that the *teretiuscula* has a **SERRATED** membrane. Mr. Luxford says (Phytol. 922), when speaking of the *teretiuscula*, that it has a **SERRULATE** wing. Smith describes them both as having **SERRATED** beaks. These two plants are spoken of indiscriminately as having their fruit *bifid* or *notched* at the beak. The two are also spoken of as having a dorsal wing upon the convex side of their perigynia. By this it will appear that the difference of the fruit of these plants is either very inconsiderable, or that the parties who have attempted to describe them have never examined them.

I have now given the ideas of some of our most eminent writers upon these plants, in nearly their own words, lest it should be said that I have misapplied their meaning. I shall now impartially give the results of my own observations on this subject; and by an exact examination of the plants themselves, will endeavour to find out which of the above accounts, so diametrically opposed to each other, are the most consonant to matter of fact.

But before I commence I must lay down this general principle, which I hope will not be denied, namely, that Nature is uniform in all her operations, and does not recede from the rule laid down by the Wise Disposer of all things, by making the same thing often two different methods. Therefore, if I were to find a central or winged line on the convex side of the fruit of these plants, or find them with **SERRATED**, **CILIATED**, or **SERRULATED** lateral margins in one instance, I should expect to find them so in all. And now I must say that if any person will take the trouble of examining the perigyniums of these plants, he will find there is neither a central wing nor central line on their convex side; but there is an opening on that side which extends downwards to the very bottom of the beak, and in some instances to the base of the perigynium itself. The curious nature of this opening may perhaps have given rise to the various opinions as to its having a wing or winged line. This opening may be seen by passing a knife in a longitudinal direction along the outer or convex side of the beak, which will be found to consist of two thin membranes, which overlap each other, and thus form what a mechanic would call a spliced joint. This is a description of a perigynium in its ordinary form; but in some we find one or both of these membranes that is not laid close down, and thus may have given rise to the supposed central wing; in others we find these membranes turned inwards, and in that state may have given rise to the supposed central line. When the beak is opened out and laid flat, it will be found that what was the inner or concave side is very thin in the middle, particularly so towards the point, and

this part being split by the least accident, causes it to be more or less notched or bifid. This character is common to *C. teretiuscula*, paniculata, paradoxa, and to my pseudo-paradoxa, but on examination it will be the least distinct in paradoxa and most distinct in my pseudo-paradoxa. *Carex paniculata* is spoken of as having the beak of its perigynium more deeply bifid; with a broader and deeper fringed margin. In this I find no difference between paniculata and its allies, as they are all equally variable in this respect. I have the perigyniums of paniculata with their margins as narrow and as indistinctly fringed as any I ever saw in teretiuscula; and I have often met with paniculata with the beaks of its perigyniums quite entire, that is to say, neither bifid nor notched. To speak of the beaks or lateral margins of these perigyniums being more or less white or green, would only be losing time, as any person who has paid the least attention to the subject will know how far we can depend on such a character, as all of them will (I think) be found green when in a young state, and more or less white with age.

Having now spoken at some length on the beaks of the perigyniums of these plants, I now come to notice their lower parts: and on examination I find these parts (in all the four forms) to be equally variable, that is, in being convex on one side, and flat or concave on the other, or in being more or less convex on both sides. I have seen *C. paniculata* with its perigyniums even concave on both sides; and at other times I have met with it having its perigyniums as much inflated and quite as gibbous on their inner faces as ever I saw those parts in *C. paradoxa*; and on the other hand, I have seen *paradoxa* with the inner faces of its perigyniums flat, and in some instances concave on that side. In short, I always consider the perigynium as the most variable part in all *Cariæes*, the shape depending much on their being more or less densely placed on the rachis. Thus, a spike or spikelet (of the same species) having four, six or eight rows, would have them of various shapes, and when placed very close one above the other, so as to press the beaks outwards, they will be found more convex upon their inner faces than when they are more distantly placed.

My reasons for not considering the perigynium of *Cariæes* as being part of their fruit, are as follows. First; because I often find them with pistils which remain abortive: secondly, with stamens only: thirdly, with both stamens and pistils: fourthly, proliferous, that is, with the peduncle of one perigynium passing through the beak of the next below, and thus rising one above the other for four or five heights; in this state they are sometimes abortive, and at other times produce per-

fect nuts : and, fifthly, I find them with the peduncle of a fertile spike passing through the beak of one or more of their perigyniums ; this character is common in the different forms of what is called *C. Goodenovii*. When in this state I find the perigyniums insensibly passing into what are called scales or glumes ; and on the other hand, I find the glumes insensibly passing into what are called the bracteas ; and again, I find these bracteas in the same insensible manner passing into what are called the leaves. Thus we have perigyniums, glumes, bracteas and leaves, so closely connected that it is impossible to tell where to strike the line of distinction.

I now turn to Mr. Luxford's note (Phytol. 918), and as I only study plants &c. in their natural habits, I do not know what Mr. L. means us to understand by his reference "to our domesticated animals and our cultivated plants and fruits." But I must say that I am somewhat surprised at Mr. Luxford's notion of a *natural group* of *Carices*, when I find that he has put *Carex vulpina* alongside of *C. paniculata* &c. : and I am also surprised to find him saying that "the inflorescence of *Carex vulpina* is tolerably constant," as I do not know of any *Carex* that is more inconstant in its mode of inflorescence. And so far as its natural affinities are concerned, I think that it would have been better placed with such species as *muricata*, *divulsa*, &c.

And as *I do not study figures*, I will pass over those of Mr. Wilson and the others which have been "copied from Leighton's 'Flora of Shropshire,'" by just saying that I have never seen the mature nut of a *Carex* that has any resemblance to Mr. Wilson's fig. *d* ; but on the contrary, I say that no figure could be made more correctly to represent the MATURE nut of *C. teretiuscula* than that of Mr. Leighton.

As one who studies plants, I would advise such persons as are in the habit of making figures that should represent such characters as the swollen base of the style of a *Carex*, while standing on the nut, just to make some mark whereby we may distinguish the style from the nut itself ; or perhaps we might mistake the whole of the nut for part of the style.

For an account of the discovery of *Carex paradoxa* in Yorkshire, Mr. Luxford refers us to a note by Mr. Spruce, (Phytol. 842). So far as regards the discovery of this plant, it is a matter of little or no importance, but what has been said on the subject would, *I think*, have been much better, if it had been correct. Mr. Spruce says, "it was first found by myself in Heslington fields, in April, 1841, and a few weeks after in Ascham bogs." Here I could inform Mr. Spruce when and by whom this plant had been found in Yorkshire long before the

time that he has mentioned ; but for the correctness of his statement, I will only refer the reader to Baines's ' Flora of Yorkshire,' for there he will find Ascham-bogs given as a station for the plant in question ; and as this book was published in the year 1840, it will serve to show that this plant must have been discovered previous to 1841.

Mr. Luxford tells us that the stem of *C. paniculata* has three acute angles, with the interstices flat ; while the angles of *teretiuscula* are obtuse, with projecting lines on the sides. He also tells us that the stems of the *paradoxa* resemble the latter. In this Mr. L. agrees with most of our writers on the British *Carices* ; and indeed we are told in 'English Botany,' that *C. teretiuscula* takes its name from the circumstance of its having a stem of a peculiar form. I shall not say here how far the form of the stems of *Carices* may be taken into account as characters whereby to distinguish them as species ; neither shall I say how far these forms are constant. But this I will say, that my *Carex pseudo-paradoxa* (*those specimens that were sent by Dr. Wood to Mr. Babington*) *has a stem that has three acute angles, with the interstices flat*, or, if I were to speak with exactness, I might say the interstices are concave. Mr. L. tells us that these characters indicate specific identity.

As regards the perigynia and nuts of the *Carices* in question, I might say, taking the rule and leaving out the exceptions, that the perigynia of *C. paniculata* and *paradoxa* are nearly the same, so far as the ribs are concerned, and their greater or less proportion of convexity is variable in both ; in my *pseudo-paradoxa* and the *teretiuscula* the ribs are the same, but the former has a perigynium that is much broader at the base.

If we take a series of the nuts (that is to say what belongs to one specimen) of *C. paniculata*, *paradoxa* and my *pseudo-paradoxa*, it will be found that their resemblance is so close that it is not possible to distinguish them with certainty ; and if, on the contrary, we take a series of the nuts of *C. teretiuscula*, we shall find their outline to be very different from the other three, the prevailing number will be found to resemble Mr. Leighton's figure of the nut of that species.

It must be understood that I here speak of the fruit of these *Carices* in a state of maturity : this I say with so much certainty, that I shall not have to retract the words by saying that "I am inclined to think" otherwise, as nothing is more easy than to know when the fruit of a *Carex* is mature.

As Mr. Luxford takes the ' London Catalogue of British Plants ' as some authority in this disputed point, I hope that he will allow me to

say, that the plant which I have called *Carex pseudo-paradoxa* is neither more nor less a species for being placed under *C. teretiuscula* as *var. b.* of that plant. I wonder that the compilers of that Catalogue did not do by these four *Carices* as they have done by some of our *Salices*, that is, to make *a, b, c* and *d* of them, and then tell us that their "proper typical form" is to be found in some foreign land !!

I am truly sorry to say that Mr. Luxford's note is of no value in settling the disputed point, *since he tells us that he does not know* whether the differences he has taken so much pains in pointing out, may not be attributed to the plants being examined in different states of maturity.

My *Carex pseudo-paradoxa*, differs from *C. teretiuscula* (WHEN MATURE) in its nut being narrowed from below the middle, and in the perigynium being broader and truncate at the base; it also differs from that plant in its stem having three *acute* angles, with their interstices *flat*. From *C. paniculata* it differs in its perigynium being differently ribbed and less distinctly bifid at the point, and in having narrower leaves. From *C. paradoxa* it will be found to differ in its perigynium being less distinctly ribbed on its inner side, and also in the form of its stem. And from all the other three it differs in its mode of inflorescence.*

SAML. GIBSON.

Hebden Bridge, June, 1844.

ART. CCXXX. — *Notice of Presl's 'Hymenophyllaceæ.'*†

IN all and everything relating to ferns, the name of Presl is a guarantee for excellence. In saying this, we by no means assert that he is infallible: we could with little trouble lay our finger on several important errors into which he has fallen; one of the most inexcusable of these is his version of the venation of *Ceterach*: but we do assert that there is throughout his works a constant exhibition of the most comprehensive knowledge, of the most admirable power of seizing characters, of the most acute judgment and capability of generalizing, and of the most perfect fairness in citing all the authorities with which he is acquainted.

* Thus far we have given Mr. Gibson's letter entire, but we hope to be excused for omitting his concluding paragraph, as not bearing on the subject in dispute.—*Ed.*

† *Hymenophyllaceæ.* Eine Botanische Abhandlung, von PROF. DR. KARL B. PRESL. Prag. [Pamplin, Frith Street, London].

The work by which Presl first attained his reputation was published at Prague in 1836, under the well known title of 'Tentamen Pteridographiæ.' He there divides the ferns into five orders: --- Filicaceæ, Hymenophyllaceæ, Marattiaceæ, Osmundaceæ and Ophioglossaceæ; of these the Filicaceæ alone are analyzed, the Hymenophyllaceæ being announced as the subjects of a future memoir, while the remaining orders are left for other botanists to elaborate. "Should it please Almighty God the Hymenophyllaceæ shall be discussed in a separate memoir: but I purpose leaving the remaining orders to the skilful hands of other historians." The memoir thus promised in 1836, was completed in 1842; and we consider it so excellent, that we trust no apology is necessary for giving *verbatim* a large portion of its contents.

Comparing this treatise with that upon the Filicaceæ, it is decidedly superior. In the earlier work there are combinations, both as sections, genera and subgenera, which will not bear the test of critical examination: but in the present work the groups are described with the utmost care, and perhaps are indebted for some portion of their greater value to the fact that they depend almost solely on the fructification. Presl was the first to systematize the venation of ferns, and carried away by the beauty, the novelty, and indeed by the intrinsic utility of this guide, he perhaps, in some instances, gave it too great an importance, and allowed it to take precedence of the characters of fructification. In the Hymenophyllaceæ he finds the venation more uniform, and is therefore driven back on the fructification; and the result of the application of his great analytical powers to so safe and certain a guide, is the institution of genera more definite and tangible than any previously promulged in any section of the filicoid plants.

We have already seen that the author considers the Hymenophyllaceæ a group as distinct from the other annulate ferns as are the Osmundaceæ. To this opinion we are scarcely prepared to subscribe. The capsule in these plants possesses a most distinct articulated ring, as in the true Polypodies: yet generally differs in being attached to the receptacle by a portion of its diameter, the ring not unfrequently passing transversely round the capsule, like a belt; whereas, in the Filicaceæ of Presl, it is almost invariably stipitate, its stipes generally appearing continuous with the ring. The receptacle in the Hymenophyllaceæ is free; while in the Filicaceæ it is almost invariably imbedded. And here it may be as well to observe, that every part of the vein in ferns seems liable to become a receptacle by the presence of capsules. In the Filicaceæ we find a distinct and apparently independent involucre; it does not appear to us to be the cuticle of the

frond separated from the parenchyma by the pressure of the growing capsules, although the great similarity of its structure to that of the epidermis has been so often pointed out; but rather a separate and distinct part, as much so as the veins, the capsules or the scales: in the Hymenophyllaceæ the bivalved involucre is quite another affair; it is perfectly continuous with the edge of the frond, and is very evidently formed of its two cuticles. The office of the involucre in the Polypodies has not, we believe, been demonstrated with precision, and it is quite possible that the involucre in the Hymenophyllaceæ may perform exactly similar functions; but the parts are not identical, and the involucre of Hymenophyllum appears to us rather the analogue of the inflected margins of an *Adiantum*, or an *Allosorus*, than of the peltate involucre of a *Polystichum*. The texture of the frond in the Filicaceæ is generally somewhat coriaceous or slightly fleshy, and the transparent veins, when viewed from above, appear to be sunk in its substance: in the Hymenophyllaceæ the reverse is the case, the frond being very thin and membranous, and the veins stout, winged, prominent and opaque. Thus the structure of these interesting plants seems to lead us to the conclusion that they form a part of the Filicaceæ, or true ferns, while the points in which they differ from the rest are so numerous, that we are compelled to consider them the most distinct and detached division of that extensive and diversified order.

We are fully aware that exceptions occur to all these characters: for instance, Robert Brown's *Loxsoma* seems to have something of a fleshy or leathery frond, with free, setiform involucre and stipitate capsules; and other instances of departure from typical character might without difficulty be pointed out.

The Hymenophyllaceæ are divided by Presl into nineteen genera, composing two tribes, *Trichomanoideæ* and *Hymenophylloideæ*; the first of these is again divided into two sections, *Trichomanes* and *Didymoglosseæ*. The genera of *Trichomanes* are these: *Feea* and *Hymenostachys* of Bory, *Didymoglossum* of Desvaux, and *Lecanium*, *Cardiomanes*, *Trichomanes* (restricted), *Ragatelus*, *Cephalomanes*, *Neurophyllum*, *Microgonium*, *Abrodictyum*, *Meringium* and *Hemiphlebiium* of Presl. The genera of *Hymenophylloideæ* are *Leptocionium*, *Myrmecostylum*, *Ptycophyllum*, *Hymenophyllum* (restricted), *Sphærocionium* and *Hymenoglossum* of Presl.

The characters given to the *Trichomanoideæ* are these.*

* We prefer giving the quotations untranslated, believing that all botanists who may honour us with a perusal of these pages, will prefer the original to any version which it is in our power to make.

"Sorus in substantia ipsa frondis seu intra ejus lamias immersus, aut in apice venæ venulæ sessilis. Indusium tubulosum, tubo integro, limbo integro aut bipartito. Receptaculum filiforme, exsertum, inferne capsulis spiraliter obsitum, cæterum nudum punctis excavatis spiraliter ambientibus ornatum."—p. 10.

It will be observed that the main distinction between the two tribes is found in the tubular involucre of the *Trichomanoideæ*, the tube being invariably entire, and its limb either entire or bipartite, the former character distinguishing the *Trichomaneæ*, the latter the *Didymoglossæ*. In this definition we feel scarcely inclined fully to concur, since in the first group we almost invariably find the limb of the involucre bipartite, or at least emarginate on each side, at its junction with the wing or margo.

Genus, *FEEA*, *Bory*.

"Fronde dissimiles. Steriles: Venæ internæ, pinnatim alternæ, simplices aut sæpius furcatæ. Fertiles: Venæ creberrimæ, brevissimæ, pedicelliformes, soriferæ. Sorus in vena pedicelliformi apicalis. Indusium clavato-infundibuliforme, ore crenulato. Receptaculum exsertum, tenuiter clavatum, basi capsuliferum. Capsulæ sessiles, lenticulares. Rhizoma adscendenti-repens, polyrhizum. Fronde sparsæ, valde approximata ita ut fasciculatæ videantur, transparentes, stipitata, steriles a fertilibus difformes. Frons sterilis profunde pinnatifida aut pinnata, laciniis linearibus obtusis obscure repando-crenulatis, pinnis adnatis ovato-oblongis obtusis crenulatis, stipite basi tereti, in una facie supra canaliculato in altera convexo, rachi hinc plana illinc convexa, costis tenuibus vix prominulis, venis internis pinnatim alternis angulo acuto patentibus simplicibus aut sæpius furcatis venulisque ante marginem frondis desinentibus, parenchymate e cellulis hexagono-subrotundis constructo. Frons fertilis longius stipitata, ad meram rachidem reducta, venis brevissimis creberrimis pedicelliformibus soriferis. Indusium clavato-infundibuliforme, sæpe incurvum, ore crenulato. Receptaculum indusio triplo longius, filiformi-subclavatum, basi capsuliferum, reliqua longitudine punctis impressis spiraliter ambientibus minutis, inde sub microscopio tantum visibilibus, ornatum."—p. 10.

1. *F. polypodina*, *Bory, Dict. Class. t. 68.* *Trich. spicatum*, *Hedw. Sw. T. spicorum, Desv. T. elegans, Rudge, partim. Hook. Exot. Fl. t. 52.*

2. *F. nana*, *Bory, Dict. Class. 1, t. 69, f. 1.* *Tri. botryoides, Rich. in Kaulf. Herb.*

Genus, *HYMENOSTACHYS*, *Bory*.

"Fronde dissimiles. Steriles: Venæ internæ, pinnatim alternæ, simplices aut sæpius furcatæ. Fertiles: Venæ creberrimæ, parallelæ, simplices, apice soriferæ. Sorus intramarginalis, immersus. Indusium campanulatum, ore truncato integro. Receptaculum exsertum, filiforme, basi capsuliferum. Capsulæ sessiles. Stirpes tropicæ, americanæ, speciosæ. Rhizoma adscendenti-repens, polyrhizum. Fronde sparsæ quidem sed valde approximata ita ut fere fasciculatæ videantur, stipitata, hygroscopica, transparentes, steriles a fertilibus difformes. Frons sterilis pinnata aut pinnatifida, pinnis adnatis laciniisque oblongis obtusis inæqualiter angulato-dentatis repandisve; costæ tenues, vix prominulæ; venæ internæ, tenues, pinnatim alternæ, angulo acuto patentibus, simplices aut sæpius furcatæ, venulisque ante marginem desinentes. Frons

fertilis linearis, angusta, venis creberrimis parallelis simplicibus apice soriferis. Stipes in fronde fertili longior. Rachis Parenchyma Sori immersi, intramarginales. Indusium campapulatum. Receptaculum indusio triplo longius."—p. 10.

1. *H. elegans*. Trich. *elegans*, *Rudge, partim*, exclusa nempe fronde fructifera dextra et figura 3 et 4.

2. *H. osmundioides*. *H. diversifrons*, *Bory*. *T. osmundioides*, *Poir.*

Genus, LECANIUM, Presl.

"Costa nulla. Venæ flabellatæ, creberrimæ, subparallelæ, plurius furcatæ, crassiores apice soriferæ. Venulæ tenuissimæ in superiori parte, frondis libere exorientes et squamas duas oppositas supramarginales patere-formes patentes gerentes. Sorus intramarginalis, immersus. Indusium lineari-cylindricum, elongatum, limbo hypocraterimorpho patente, crenulato. Capsulæ receptaculo filiformi indusium longe excedenti undique affixæ, sessiles, angulato-lenticulæ, valde excentricæ (pone marginem) affixæ. Rhizoma repens, ramosum, filiforme, ramisque radiculis copiosissimis fuscis piliformibus vestitum. Frondes sparsæ, distantes, hygrometricæ, flabellatæ, irregulariter lobatæ, in pagina utraque conformes, glabræ, transparentes. Stipes brevissimus (unitrilinealis), compressus, paleis fuscis copiosissimis piliformibus brevibus vestitus. Rachis et costa nulla. Venæ flabellatæ, creberrimæ, plurius furcatæ, venulæ aliæ soriferæ aliæ steriles, furcatione in marginem excurrentes. Venulæ aliæ internæ, in superiori parte frondis exorientes, plerumque hinc, tenuissimæ, liberæ, gerentes in margine frondis organum peculiare constitutum e squamis duabus oppositis sessilibus liberis patereformibus concavis patentibus tenuiter membranaceis. Parenchyma e cellulis hexagonoideis, in limbo indusii e cellulis subquadratis constructum. Indusium elongato-cylindricum v. lineare, immersum, limbo libero. Receptaculum indusio plus quam triplo longius, filiforme, ramosius conservata, sed inque ad omni indusii abruptum. Capsulæ totæ fere longitudinem receptaculi, solum longa supra os indusii capsuliferum. Sporæ tetradicæ. Species unica, antillana."—p. 11.

1. *L. membranaceum*. Trich. *membranaceum*, *Lin.*

Genus, CORDIOMANTHA, Presl.

"Costa nulla. Venæ pedato-flabellatæ, crebræ, furcatæ, steriles ante marginem frondis apice obtuso desinentes. Sorus intramarginalis, immersus. Indusium campanulatum, ore integrum. Capsulæ lenticulæ, receptaculo clavato obtuso demum exserto undique affixæ. Species unica Novam Zeelandiam inhabitans, elegantissima. Rhizoma late repens, ramosum, polyrhizum, radicibus flexuosis radiculis copiosissimis capilliformibus fuscis vestitis simplicibus ramosive. Frondes sparsæ, distantes, glaberrimæ, vix aut non hygrometricæ, firmiores et minus transparentes quam omnes reliquæ Hymenophyllaceæ, longe stipitatæ, reniformi-subrotundæ, integerrimæ, in pagina utraque conformes. Stipes usque semipedalis, inferne teres, medio et superne lanceops, apice frondis lamina decurrente marginatas, glaberrimus. Costa media nulla. Venæ ex apice stipitis pedato-flabellatim exstantes, plurius furcatæ, angulo acutissimo divise, venulis subinde omnibus soriferis, sterilibus ante marginem frondis apice obtuso desinentibus. Sorus intramarginalis, immersus. Indusium campanulatum, ore integro. Receptaculum indusio duplo longius, exsertum, clavatum, obtusum, rectum, rigidum, undique usque ad apicem capsuliferum, capsulis delapsis panctis impressis spiraliter ambientibus notatum. Capsulæ lenticulæ, sessiles."—p. 12.

1. *C. reniforme*. Trich. *reniforme*, *Forst.*

Genus, TRICHOMANES.

"Venæ pinnatæ, alternæ, simplices ramosæve, steriles apice acuto libero desinentes. Sorus intramarginalis immersus aut supramarginalis exsertus. Indusium infundibuliformi-cylindraceum, limbo integro vel crenulato. Receptaculum filiforme, elongatum, indusium excedens, inferne capsuliferum. Capsulæ lenticulares, sessiles. Rhizoma repens, paleaceo-pilosum, sæpe (in *T. crispo*, *T. plumoso* &c.) obliquum crassum simplex angulatum, sæpissime filiforme teres ramosum elongatum. Radices filiformes, simplices aut ramosæ, radiculis piliformibus. Stipes varie longus, in plurimis teres, in *T. pennato*, *T. Sellowiano* et aliis in una pagina canaliculatus in altera convexus, in *T. plumoso* et *T. Henkæano* (an exsiccatione?) acute triangulus. Frons hygroskopica, tenera, transparens, simplex aut varie divisa, nempe lobata, pinnatifida, pinnata usque supradecomposita, paginis conformibus. Venæ vix prominulæ, e costa pinnatim exorientes, alternæ, steriles venulisque ante marginem frondis libere desinentes, in paragrapho prima crebræ l. creberrimæ fere parallelæ uni—pluries furcatæ, venulis parum divergentibus, in paragrapho secunda et tertia distantes multo parciores pinnatim divisæ, venulis divergentibus. Cellulæ parenchymatis hexagonoidæ, latitudine duplo triplove longiores, minutæ et minutissimæ. Sorus aut intramarginalis seu frondi immersus, aut supramarginalis seu fronde obliterata apice venæ venulæve subdenudatæ insidens. Indusium in *Achomane* infundibuliforme ore integro simplici, in *Eutrichomane* et *Pachyochaeta* infundibuliformi-cylindraceum oris crenulati repandive margine patentissimo subreflexo, unde limbus hypocaterimorphus quodammodo provenit. Receptaculum indusio duplo triplo quadruplove longius, sæpissime setaceum flexuosum, rarius subclavatum, basi intra indusium capsuliferum, in parte superiori nuda punctis oblongis impressis spiraliter ambientibus notatum."—p. 13.

The author then recapitulates the characters of the genus *Trichomanes*, as they are given by Linneus, Swartz, Bernhardt, Willdenow, Robert Brown, Kaulfuss, Sprengel and Endlicher, showing how completely they contradict each other, and how inadequate they are to the correct definition of a genus. He divides the restricted genus *Trichomanes* into three named sections, as under.

* ACHOMANES.

1. *T. pellucidum*, Kunze.
2. *T. Kaulfussii*, Hook. *T. lucens*, Hook. olim. *T. astylum*, Kaulf. in Sieb. *Fl. Mixt.* n. 340.
3. *T. fastigiatum*, Sieb. *Syn. Fil.* n. 144.
4. *T. heterophyllum*, Willd.
5. *T. cristatum*, Kaulf.
6. *T. Martiusii*, Presl. "*T. fronde lineari-lanceolata elongata utrinque angustata stipiteque pilis patentibus hirsuta profunde pinnatifida, laciniis horizontalibus angulo acuto interstinctis oblongis obtusis integerrimis contiguis, inferioribus decreescentibus, summis confluentibus, venis parallelis, receptaculis setaceis longissimis, frondibus novellis (nondum evolutis) hirsutissimis, rhizomate crasso lignoso polyrhizo adscendente. T. pilosum*, Mart. *Crypt. Bras.* p. 104, t. 68, fig. dextra, nec Raddi.

"Habitat in Brasiliæ provincia Rio Negro in montibus Arara-Coara et Cupati flavio Japurâ imminentibus, ubi Januario fructificans collegit celeb. Martius"—p. 36.

7. *T. plumula*, *Presl*. “*T. fronde oblongo-lanceolata elongata apice angustata stipiteque pilis adpressis articulatis simplicibusque hirsuta pinnata aut profundissime pinnatifida apice pinnatifida, pinnis oblongo-linearibus obtusis integerrimis contiguus angulo acutissimo interstinctis horizontalibus, inferioribus deorsum versis, infimis 2—3 utrinque subito decrecentibus, venis parallelis, receptaculis setaceis longissimis scabris, rhizomate crasso lignoso polyrhizo horizontali hirsutissimo. T. pilosum, Mart. Crypt. Bras. p. 104, t. 68, figura sinistra, nec Raddi.*”

“Habitat in Brasilia cum præcedente.”—p. 36.

8. *T. pilosum*, *Raddi*.

9. *T. crispum*, *Lin.*

10. *T. plumosum*, *Kunze*.

11. *T. Haenkei*, *Presl*. “*T. fronde oblongo-lanceolata elongata acuta pubescente pinnata basi obtusa, pinnis adnatis angulo rotundato interstinctis oppositis alternisque oblongis obtusissimis crenulatis parallelis contiguus apice fructiferis, infimis æquilongis distantibus deflexis, reliquis horizontalibus, venis di-trichotomis, fructiferis simplicibus, receptaculis longissimis, stipite triquetro rachique hinc convexa illinc canaliculata pilis adpressis hirsuto. T. crispum, Presl, Reliq. Haenk. 1, p. 69.*”

“Habitat in montanis huanoccensibus Peruviae, ubi legit beatus Haenke.”—p. 36.

12. *T. Sellowianum*, *Presl*. “*T. fronde lineari-lanceolata elongata acuta profunde pinnatifida basi obtusa, laciniis oblongis obtusis inæqualiter denticulatis ciliatis undulatis sinu rotundato minuto interceptis alternis contiguus horizontalibus, infimis paululum minoribus deflexis, venis di-trichotomis, in una facie costaque pubescentibus, receptaculis longissimis, stipite hinc convexo illinc canaliculato rachique convexa pilis adpressis hirsuto. Trichomanes, Herb. Reg. Berol. Bras. n. 197.*”

“Habitat in Brasilia, ubi legit Sellow.”—p. 37.

13. *T. asplenioides*, *Presl*. “*T. fronde lineari-lanceolata elongata glabra pinnata, pinnis alternis oppositisque sessilibus oblongis obtusis crenulatis inæquilateris inferne angustioribus acutis superne latioribus truncatis auriculatis, fructiferis irregulariter fissis aut laceris, venis creberrimis furcatis venulisque crassiusculis, rachi inferne hinc canaliculata hinc tereti, stipite tereti basi hirsuto, rhizomate brevi oblique repente. — Cuming, Pl. Ess. Philipp. n. 184.*”

“Habitat in insulis Philippinis, ubi legit clar. Cuming.”—p. 37.

14. *T. dimidiatum*, *Presl*. “*T. fronde lineari longe angustato-acuminata pinnata, pinnis petiolulatis oblongis obtusis acuminatisve pinnatifidis basi inferne dimidiatis integerrimisque, basi superne truncatis, laciniis subbilobis lobisque bidentatis obtusis, infima majori auriculæformi, rachi hinc canaliculata illinc convexa stipiteque brevi villosa-paleacea, soris exsertis subpedicellatis, indusii limbo erecto. Cuming, Pl. Ess. Philipp. n. 129.*”

“Habitat in insulis Philippinis præsertim in insula Luzon, ubi legit clar. Cuming.”—p. 38.

15. *T. javanicum*, *Blume*. *T. rigidum*, *Wall. Cat. n. 161.*

** EUTRICHOMANES.

16. *T. Bojeri*, *Hook. et Grev.* *T. undulatum*, *Wall.*

17. *T. digitatum*, *Sw.* *T. lanceum*, *Bory.*

18. *T. saxifragoides*, *Presl*. “*T. fronde glaberrima orbiculato-flabellata digitato-quinquefida basi acuta, laciniis lobatis dentatisve, lobis dentibusque obtusis, soro sub-*

solitario, indusii limbo patente subrepando, stipite laminam superante rhizomateque filiformi. *Cuming, Pl. Exs. Philipp. n. 256.*

"Habitat in insulis Philippinis, præcipue in insula Luzon, ubi legit clar. Cuming."—p. 39.

19. *T. palmatum, Presl.* "T. fronde oblonga subramosa glaberrima pinnata, pinnis petiolulatis remotis, infimis una- duabus digitato-multifidis basi cuneatis, laciniis linearibus obtusis, mediis (si adsunt) duabus oppositis trifidis, laciniis cuneato-linearibus obtusis subcrenatis, superioribus fructiferis bifidis simplicibusque laciniisque cuneato-linearibus, soris immersis, indusii infundibuliformis limbo patente integro. — *Cuming, Pl. Exs. Philipp. n. 209.*

"Habitat in insulis Philippinis, præsertim in insula Luzon, ubi legit clar. Cuming."—p. 39.

20. *T. Hookeri, Presl.* *T. muscoides, Hook. et Grev. Ic. Fil. t. 179.*

21. *T. erosum, Willd.*

22. *T. parvulum, Poir.* *T. sibthorpioides, Bory.*

23. *T. Thouarsianum, Presl.* "T. fronde ovata obtusa glaberrima profunde pinnatifida basi acuta, laciniis utrinque duabus oppositis terminalique cuneatis bifidis, lobis linearibus integris dentatisve dentibusque emarginatis, indusii limbo patente integro, stipite lamina brevior rhizomateque filiformi.

"Habitat in insula Borbonia, ubi legit Du Petit Thouars."—p. 40.

24. *T. Poeppigii, Presl.* "T. fronde lineari-lanceolata obtusa sessili pinnatifida pilis apice stellato-ramosis (umbraculiformibus) ciliata apice angustata basi acuta, laciniis oblongis obtusis subrepandis superne obsolete unidentatis, venis pinnatis, lacinarum inferiorum superiorumque simplicibus, indusii limbo patente integro, rhizomate filiformi piloso. *T. sinuosum, Poeppig, Fil. Amer. Exs. Kunze, Fil. Poepp. in Schlecht. Linnæa, IX. p. 103.*

"Habitat in Peruvia, ubi legit clar. Poeppig."—p. 41.

25. *T. sinuosum, Rich.* *T. incisum, Kaulf.*

26. *T. cognatum, Presl.* "T. fronde oblongo-lanceolata obtusa glabra pilisve bifidis ciliata pinnatifida basi in stipitem angustato-decurrente, laciniis ovato-oblongis obtusis obtuseque dentatis sinu obtuso interstinctis, venis simpliciter ramosis, soris immersis, indusii infundibuliformis limbo truncato, stipite inferne filiformi supra basim articulo, rhizomate angulato paleaceo-piloso.

"Habitat in Serra d'Estrella Brasilæ, ubi legit Beyrich."—p. 41.

27. *T. lucens, Sw.*

28. *T. alatum, Sw.*

29. *T. Bancroftii, Hook. et Grev.* *T. coriaceum, Kunze.* *T. pinnatifidum, Willd. Herb. n. 20, 209.*

30. *T. Ankersii, Parker.*

31. *T. intramarginale, Hook. et Grev.*

32. *T. luzonicum, Presl.* "T. fronde oblongo-lanceolata obtusa glaberrima profundissime bipinnatifida, laciniis primariis lanceolatis obtusis, secundariis linearibus integerrimis obtusis emarginatisve, stipite brevi apice alato, soris exsertis, indusii limbo patente oreaulato, receptaculo recto. *Cuming, Pl. Exs. Philipp. n. 98.*

"Habitat in insula Luzon, ubi legit clar. Cuming."—p. 42.

33. *T. acutum, Presl.* "T. fronde oblongo-lanceolata obtusa glaberrima profundissime bipinnatifida basi pinnata, laciniis primariis pinnisque oblongo-lanceolatis acuminatis, secundariis oblongis bi- trilobis, lobis linearibus acutis mucronulatis integer-

rimis, soris exsertis, indusii limbo patente integro, receptaculo recto. *Cuming, Pl. Ess. Philip. n. 219.*

"Habitat in insulis Philippinis, præsertim in insula Luzon, ubi legit clar. Cuming."—p. 42.

34. *T. venosum, Brown.*

35. *T. Belangeri, Bory.*

36. *T. melanotrichum, Schlecht.*

37. *T. brachypus, Kunze. T. radicans, Hook. et Grev. Ic. Fil. t. 218.*

38. *T. radicans, Sw.*

39. *T. pyxidiferum, Linn.*

40. *T. ambiguum, Sieb. Syn. Fil. n. 143.*

41. *T. braziliense, Desv.*

42. *T. Bauerianum, Endl.*

43. *T. trichoideum, Sw.*

44. *T. tenerum, Sp.*

45. *T. exsectum, Kunze.*

46. *T. angustatum, Carmich.*

47. *T. Mandiocanum, Raddi.*

48. *T. scandens, Linn. T. radicans, Kunze, Syn. Fil. Poeppig, Hymenophyllum radicans, Poeppig. Fil. Ess.*

49. *T. umbrosum, Wall.*

50. *T. strictum, Menz.*

51. *T. tamarisciforme, Jacq.*

52. *T. Achilleifolium, Willd.*

53. *T. longisetum, Bory.*

54. *T. Millesfolium, Presl. T. glaberrimum, fronde oblongo-lanceolata acuta tripinnata, pinnis pinnulisque primariis petiolulatis oblongo-lanceolatis obtusis, secundariis profundissime pinnatifidis l. pinnatis, laciniis anguste linearibus obtusis integris bifidisque, soris exsertis pedicellatis, indusii cylindracei limbo patente brevissimo, receptaculo setaceo brevi, stipite rachibusque tereti utrinque alato, rhizomate lignoso. Cuming, Pl. Ess. Philip. n. 182.*

"Habitat in insulis Philippinis, præsertim in insula Luzon, ubi legit clar. Cuming."—p. 42.

55. *T. Apifolium, Presl. T. frondè glaberrima oblongo-lanceolata acuta tripinnata, pinnis linear-oblongis pinnulisque anguste oblongo-lanceolatis petiolulatis acutis, secundariis anguste linearibus obtusis, infimis subbifidis, soris exsertis pedicellatis, indusii turbinate ore truncato, receptaculo setaceo indusio duplo longiore, stipite tereti rachibusque villosis, primariis apice secundariis tertiarisque alatis, rhizomate crasso lignoso obliquo frondes aggregatos gerente. Cuming, Pl. Ess. Philip. n. 187 et n. 190.*

"Habitat in insulis Philippinis, præsertim in insula Luzon, ubi legit clar. Cuming."—p. 41.

56. *T. bifida, Vent.*

57. *T. emans, Presl. T. frondè oblongo-lanceolata acutissima tri-quadrupinnata, pinnis glaberrimis linear-lanceolatis acuminatis pinnulisque primariis lanceolatis obtusis petiolulatis, secundariis anguste linearibus obtusis, infimis superioribus subbifidis, rachibus inferne teretibus paleaceo-villosis, superne glabris alatis, soris exsertis pedicellatis, indusii infundibuliformis limbo erecto tubum subæquantem, receptaculo setaceo, stipite tereti paleaceo-hirsuto. Cuming, Pl. Ess. Philip. n. 207.*

"Habitat in insulis Philippinis verosimiliter in insula Luzon, ubi legit clar. Cuming."—p. 44.

58. *T. fœniculaceum*, *Bory.*

59. *T. Meifolium*, *Bory.*

60. *T. intermedium*, *Kaulf.*

*** PACHYCHÆTUM.

61. *T. Luschnatianum*, *Presl.* "T. fronde sessili oblongo-lanceolata acuta pinnata basi obtusa, pinnis subsessilibus lanceolatis acuminatis profunde pinnatifidis, lacinii inferioribus ovatis obtusis inferne lobatis superne dentatis, lobis dentatis, dentibus obtusis, soris immersis, indusii infundibuliformis limbo erecto, receptaculo crassiusculo scabro, rachi marginata, rhizomate tereti scandente.

"Habitat in Brasilia ad Rio de Janeiro, ubi legit Luschnat."—p. 45.

62. *T. rigidum*, *Sw.*

63. *T. firmulum*, *Presl.* "T. fronde oblongo-lanceolata acuminata glaberrima pinnata basi obtusa, pinnis subpetiolulatis acutis profunde pinnatifidis, lacinii linearicuneatis tri- bifidis indivisisque lobisque acutiusculis, venis pinnatim ramosis, soris lateralibus, indusii infundibuliformis limbo erecto integro, receptaculo crassiusculo scabro, stipite rachique primaria tereti. *T. rigidum*, *Beyrich, herb.*

"Habitat in Serra d'Estrella Brasiliæ, ubi legit Beyrich."—p. 46.

64. *T. pyramidale*, *Wall.*

65. *T. speciosum*, *Willd.*

66. *T. brevisetum*, *Spr.*

Genus, RAGATELUS, *Presl.*

"Venæ prominulæ, pinnatæ, simplices, apice libero desinantes. Sorus immersus. Indusium infundibuliformi-campanulatum, limbo patente tubhypocratefimorpho repando. Receptaculum indusio duplo triplove longius, setaceum; basi turbinate-incrassatum; transverse-striatum, apice ovoideo-incrassatum bifidum; lacinii inæqualibus obtusis oppositis setulam pallidam æquilongam interjectam forantibus. Capsula lentiolescentes, sessiles; basi incassate; receptaculi affixæ. Rhizoma ignotum, verosimiliter tamen obliquum repens. Frondes in apice rhizomatis aggregatæ, a beato Romano Adolpho Hedwig gregaria dictæ, qui terminus tamen frondis fasciculatas in Hymenophyllaceis inusitatas vix designat. Stipes uni-bipollicaris, pilis patentibus hirsutus. Frondis limbus: duos usque semitertium pollicem longus, basi pollicem plus minus latus, ovato-triangulari aut ovatus aut oblongus aut linear-lanceolatus, acutus aut obtusus, pinnatus apicem versus pinnatifidus. Pinnæ ovato-oblongæ, obtusæ, pinnatifidæ, sessiles aut adnatae, oppositæ, suboppositæ alternæque, approximatae, inferiores plerumque horizontales; lacinii frondis superiores pinnis conformes sed in rachide decurrentes et versus apicem frondis confluentes; lacinii pinnarum lineares aut cuneatæ sinu rotundato interstinctæ simplices aut bilobæ lobisque linearibus obtusis pilis catis longis flexuosis articulatis e tuberculo emergentibus simplicibus aut apice trifidis ciliatis. Parenchyma transparens, e cellulis subrotundis constructum. Rachis inferne nuda et verosimiliter teres, superne prominula. Costa flexuosa, fusca. Venæ pinnatim exorientes, simplices, fuscae, apice libero ante marginem frondis desinantes, saepe pilis supra descriptis, brevioribus tamen, adpersæ. Sori in parte frondis superiori obvientes, immersi, mediocres. Indusium pilis supra descriptis ciliatum. Receptaculum fuscum, in parte setacea læve et flexuosum."—16.

1. *R. crinitus*. Trichomanes crinitum, *Sw. Hedwig.*

Genus, CEPHALOMANES, Presl.

"Venæ pinnatim exorientes, creberrimæ, prominulæ, uni- bifurcatæ, venulisque sterilibus apice obtuso liberæ. Sorus in dentibus frondis oblitteratis terminalis, pedicellatus. Indusium cylindraceum, limbo patente integro. Receptaculum indusio dimidio duplo longius, rectum, rigidulum, cylindricum, apice in globum incrassatum, basi capsuliferum. Capsulæ sessiles, lenticulares. Rhizoma oblique repens, teretiusculum, intense fuscum, apice paleaceo-hirsutum, inferne glabrum, stipitibus aut illorum residuis aggregatis radicibusque duas trientes lineæ crassis filiformibus flexuosis rigidis tam arcte obiectum, ut vix aut non conspicitur. Stipites pollicares, semilinea paululum crassiores, teretes, paleis piliformibus fuscis flexuosis usque sesquilineam longis adpersi, demum glabrati, basibusque residuis glabris rigidis in rhizomate aggregati, ut fasciculati apparent, quamquam revera sparsi sunt. Frons (in strictissimo sensu) sex- septempollicaris, pollicem lata aut angustior, arcuato-subfalcata, exsiccata nigricans, lineari-lanceolata, acuta, basi angustata, pinnata. Pinnæ (exceptis infimis paullo distantibus) contiguae, alternæ, petiolulo vix semilineali insidentes, oblongæ, rotundato-obtusæ, inæquilatæræ, latere superiori latiore basi truncato, sterili apiceque inæqualiter anguste obtuseque dentato, fertili usque supra medium sorifero subinde dentes laciniæformes elongatos anguste lineares gerenti, apice eodem modo ac in sterili dentato, latere inferiore duplo angustiore laciniato basi acuto vel acutissimo apice ut in latere superiore dentato, laciniis sinu lato interceptis anguste linearibus (exsiccatione apparenter setaceis) acutis simplicibus aut subinde bilobis, lobis divergentibus linearibus acutis. Pinnæ infimæ sensim decrescentes oblongo- et inæquilatere obovatæ. Rachis inferne semiteres (hinc planiuscula illinc convexa), paleis piliformibus sesquilinealibus flexuosis fuscis adpersa, superne teres et glabra. Costo vix prominula, basi satis crassa. Venæ pinnatim exorientes, creberrimæ, uni- bifurcatæ venulisque subparallelæ, in quolibet dente laciniave excurrentes, steriles apice obtusæ liberæ. Parenchyma e cellulis rotundato-hexagonoideis constructum. Sori solummodo in margine superiori pinnarum, apice tamen excepto, obvenientes, exserti, pedicello brevissimo quamquam bene conspicuo insidentes. Indusium linea paululum longius, cylindraceum, basi acutum, limbo brevissimo patente integro. Receptaculum indusio dimidio aut duplo longius, rectum, rigidum, setaceo-cylindricum, apice in globum plus minus regularem incrassatum, basi capsuliferum. Capsulæ lenticulares, sessiles, in facie superiori stellato-multiradiatæ."—p. 17.

1. *C. atrovirens*, Presl.

This, the only known species, was brought by our countryman, Mr. Cuming, from the Philippine islands. The description of the genus in this instance serves also for that of the species: the number in Mr. Cuming's list is 169.

Genus, NEUROPHYLLUM, Presl.

"Venæ creberrimæ, parallelæ, simplices aut furcatæ, in denticulos frondis excurrentes. Venulæ secundariæ tenuissimæ, venas venulasque transverse arcuatim conjungentes. Sorus denticulo frondis adnatus, subpedicellatus, marginalis. Indusium infundibuliforme, ore integrum vel læviter crenatum. Capsulæ receptaculi clavato-filiformis exserti basi affixæ, sessiles, excentrice disco adnatæ, lenticulares. Species tropicæ, americanæ, typica in Americæ parte occidentali et orientali obveniens. Rhi-

zoma repens, polyrhizum, gemma subglobosa paleis fusco-nigricantibus filiformibus dense oblecta. Frondes sparsæ, approximatae, stipitatae, vix aut non hygroscopicae, transparentes, simplices aut pinnatae, margine mucronato—creberrimeque denticulatae. Stipes digitalis usque spithameus, faciem frondis indicans, hinc canaliculatus aut planus, illinc convexus. Costa hinc acutangula, illinc convexa, sæpe apice elongata nudaque et gemmam globosam fusco-paleaceam radicantem gerens. Denticuli acuminato-cuspidati, fructiferi, alternis aut pluribus interpositis sterilibus. Venæ creberrimæ, parallelæ, simplices aut furcatae venulisque cum venula marginante anastomosantes ac in denticulos excurrentes. Venulae secundariæ tenuissimæ, creberrimæ, venas venulasque conjungentes, extrorsum arcuatae, subinde ex arcu ramulum brevissimum obtusum liberum emittentes, subinde in medio decursu libere et acutiuscule desinentes. Parenchyma e cellulis subrotundis constructum. Sorus apici dentis insidens, pedicellatus aut subpedicellatus aut sessilis. Receptaculum indusio duplo—triplo—quadruplo longius, basi capsuliferum, reliquis longitudine cicatriculis spiraliter dispositis impressis notatum, in prima specie filiformi-setaceum, in altera clavatum.”—19.

1. *N. Vittaria*. Trichomanes Vittaria, *DeCand.*
2. *N. pinnatum*. Trichomanes pinnatum, *Hedw.* T. rhizophyllum, *Cav.* T. floribundum, *Humb.*
3. *N. pennatum*. Trichomanes pennatum, *Kaulf.*

Genus, MICROGONIUM, *Presl.*

“Venæ internæ, crebræ, pinnatæ, pluries furcatae, venulis apice infra marginem frondis utrinque ramum arcuformem cum opposito anastomosantem emittentibus, ramo hocce seu arcu latere inferiori plures venulas secundarias tenuissimas costam versus aut intra furcaturam decurrentibus et libere in varia altitudine desinentibus emittente. Sorus immersus. Indusium infundibuliformi-cylindraceum, limbo patente repando. Receptaculum setaceum, indusio longius, basi capsuliferum. Capsulae lenticulares, sessiles. Rhizoma repens, filiforme, tenue, paleis piliformibus nigro-fuscis tomentellum. Stipes quinque—octolinealis, paleis piliformibus intense fuscis patentibus dense tomentello-pubescentibus, inferne teres, apice fronde decurrente alatus. Frons usque semipollicaris, ex acuta cuneata basi ovata, rotundato-obtusa, inæqualiter quinque—octoloba seu grosse crenata, lobis vel crenis rotundato-obtusis obsolete repandis, sinibus obtusis plicatis planisque. Costa vix ulla vel brevissima, tenuis, paululum prominula. Venæ internæ, crebræ, e lateribus et ex apice costæ flabellatim exorientes, pluries furcatae. Venulae tenues, infra marginem frondis utrinque arcum seu ramum arcuformem cum opposito anastomosantem emittentes, arcu hocce seu ramo latere inferiori plures ramulos seu venulas secundarias tenuissimas intra furcaturam venularum aut versus costam decurrentibus et libere in varia altitudine desinentibus emittente. Parenchyma e cellulis hexagonoideo-subrotundis constructum. Sori in apice frondis obvenientes, pauci (unus—duo), immersi. Indusium lineam longum, infundibuliformi-cylindraceum, limbo patente repando. Receptaculum setaceum, basi capsuliferum, indusio longius, sed integrum non observatum. Capsulae lenticulares, in statu destructionis visæ.”—p. 19.

1. *M. cuspidatum*. Trichomanes cuspidatum, *Willd.*
2. *M. Berteroanum*, *Presl.* “*M.* fronde oblongo-lanceolata obtusa emarginata grosse crenata glaberrima basi angustata, crenis subæqualibus obsolete emarginatis, stipite brevi rhizomateque paleaceo-tomentello. Trichomanes reptans, *Balbis herb.*

“Habitat in insula S. Domingo, ubi legit infelix Bertero.”—p. 46.

Genus, *ABRODICTYUM*, Presl.

"Venæ prominulæ, ramosæ. Venulæ crebræ, tenuissimæ, flexuosæ, in maculas irregulariter oblongas anastomosantes, ramosæ, venulis secundariis pone marginem longitudinaliter decurrentibus, aliis intra maculas brevibus liberis obtusis. Cellulæ intra maculas transverse lineari-hexagonæ. Sorus exsertus, pedicellatus, Indusium infundibuliforme, limbo patente vel patentissimo integerrimo. Receptaculum indusio triplo longius, setaceum, basi capsuliferum. Capsulæ sessiles, lenticulæræ. Rhizoma lineam fere crassum, breve, oblique repens, teres, fuscum, paleis piliformibus fascis vestitum, radices filiformes flexuosas simplices breves firmulas emittens, apice apparenter fasciculum frondium gerens, quæ vero tantum aggregatæ et revera sparse sunt. Stipes circiter pollicaris, filiformis, teres, glaber, basi imo hinc inde palea piliformi minuta adspersus. Frons (in strictissimo sensu) hygroskopica, elastica, transparent, quadri-quinque-pollicaris, glaberrima, oblongo-lanceolata vel lineari-lanceolata, acuta, tripinnata, apicem versus bipinnata, apice pinnata. Pinnæ infimæ petiolulo semilineali instructæ, ovatæ, reliquæ sessiles, inferiores et mediæ ovato-lanceolatæ bipinnatæ, superiores lanceolatæ pinnatæ, supremæ lineares integerrimæ acutæ. Pinnulæ primariæ et secundariæ sessiles, lineares acutæ, integerrimæ, semilineam latæ, pallide viridæ (in sicco). Rachis primaria inferne teres filiformis, in reliquo depurata secundariisque tertiariisque foliaceo-alata. Vena, in qualibet pinnula solitaria, prominula, ramosa. Venulæ tenuissimæ, flexuosæ, in maculas oblongas sæpe irregulares subinde ad figuram hexagonoideam accedentes anastomosantes, venulis secundariis venulam inframarginalem longitudinaliter et undique decurrentem efficientibus, aliis intra maculas brevibus libere obtuse recteque desinentibus. Parenchyma e cellulis diversis constitutum, cellulæ marginales et spatiorum angustorum macularum sunt nempe hexagonoideo-rotundatæ, spatiorum latiorum macularum sunt transverse et lineari-hexagonoidem. Sori laterales, exserti, pedicello usque fere semilineali instructi, pedicellæ, pedicello foliaceo-alato. Indusium infundibuliforme, utrinque anguste alato-marginatum, limbo patente vel patentissimo integerrimo vel obsolete repando. Parenchyma indusii e cellulis hexagonoideo-rotundatis constructum. Receptaculum indusio triplo longius, setaceum, rectum aut flexuosum, punctis impressis spiralibus notatum, basi capsuliferum. Capsulæ sessiles, lenticulæræ."—p. 21.

1. *A. Cumingii*, Presl.

For this beautiful and remarkable fern we are indebted to Mr. Cuming. It was distributed under the numbers 208 and 358. The description of the genus includes that of the species.

Genus, *DIDYMOCLOSSUM*, Desvaux.

This very distinct and beautiful genus was established seventeen years ago by Desvaux, and strange to say, has been neglected by all subsequent filicologists with whose works we are acquainted. It exhibits in an eminent degree the full development of the bifid structure of the limb of the involucre, a character which we believe common to the whole of the Hymenophyllacæ. We find no trace of this structure in Presl's figure of *Cephalomanes* (the plant itself we have not

examined), but we see no reason for supposing it a departure from a rule that seems little subject to exception.

"Venæ aut flabellatæ pluries dichotomo-furcatæ, aut sæpius pinnatæ simplices ramosæve, steriles apice acutò libero desinentes. Sorus aut exsertus (supramarginalis) subsessilis, aut sæpius immersus (intramarginalis). Indusium infundibuliformi-cylindraceum, limbo bipartito, lacinii ovato-subrotundis obtusis demum patentibus. Receptaculum indusio longius, filiformi-setaceum, plus minus elongatum, basi capsuliferum. Capsulæ sessiles, lenticulares. Rhizoma repens, filiforme, teres, ramosum. Radices alternæ, filiformes, simplices aut ramosæ, radiculis aut paleis piliformibus vestitæ. Frons hygroskopica, tenera, immo tenebrima, transparens, simplex aut varie divisa, nempe lobata, pinnatifida, pinnata usque supradecomposita, paginis conformibus. Stipes in quibusdam brevissimus l. subnullus, in plurimis varie longus, in omnibus teres, in multis fronde decurrente marginatus. Costa media in speciebus venis flabellatis donatis nulla aut non distinguenda, in reliquis utrinque teres, vix prominula. Venæ vix prominulæ, in *D. punctatò*, in *D. sphenoidæ* et in *D. Hookeri* flabellatæ uni-pluries furcatæ, venulis subparallelis angulo acutissimo exorientibus, in reliquis speciebus venæ pinnatim ramosæ distantes multo pauciores, venulis divergentibus. Parenchyma e cellulis rotundato-hexagonoidis constructum. Sorus in plurimis speciebus immersus seu intramarginalis, in quibusdam et quidem præsertim in illis, quæ venis flabellatis donatæ sunt et in illis, quæ ad subgenus *Chilodum* nuncupatum pertinent, exsertus seu supramarginalis sessilis aut subsessilis aut brevissime pedicellatus. Indusii tubus sæpiissime cylindraceus, rarius infundibuliformis, limbus liber bipartitus, lacinii vel partitionibus ovatis aut ovato-subrotundis, obtusis aut acutiusculis, primo adpressis demum patentibus, in quibusdam speciebus purpureo-marginatis, in speciebus ad subgenus *Chilodum* relatis dentato-lacinatis, in omnibus reliquis speciebus subgenus primum seu *Eudidymoglossum* constituentibus integerrimis. Receptaculum indusio duplo—triple—quadruplo longius, rectum aut plus minus flexuosum (verosimiliter exsiccatione); setaceum, basi ima capsuliferum, in parte superiori nuda punctis oblongis inpressis spirallyter ambientibus notatum. Capsulæ lenticulares, sessiles."—p. 22.

Presl divides this genus into three sections, as under.

* EUDIDYMOGLOSSUM.

1. *D. punctatum*. *Trichomanes punctatum*, *Poir.*
2. *D. sphenoides*. *Tr. sphenoides*, *Kuntze*. *Hymenophyllum guadaloupense*, *Spr.*
3. *D. Hookeri*. *Tri. reptans*, *Hook. et Grev. Ic. Fil. t. 32.*
4. *D. reptans*. *Tri. reptans*, *Sw.*
5. *D. muscoides*. *Tri. muscoides*, *Sw.* *T. apodum*, *Hook. et Grev. Ic. Fil. t. 117.*
6. *D. Kraussii*. *Tri. Kraussii*, *Hook. et Grev. Ic. Fil. t. 149.*
7. *D. quercifolium*. *Tri. quercifolium*, *Hook. et Grev.*
8. *D. minutulum*. *Tri. minutulum*, *Gaudich.*
9. *D. alatum*. *Hymenophyllum alatum*, *Schauer, Fil. t. 1356.*
10. *D. decipiens*. *Derr.*
11. *D. Filicula*. *Tri. bilabiatum*, *Ness et Bl.* *Hymenoph. Filicula*, *Bory.*
12. *D. brevipes*, *Presl*. "*D. fronde breviter stipitata oblongo-lanceolata acuta pinnata, pinnis subsessilibus oblongis obtusis profunde bipinnatifidis glaberrimis, infimis horizontalibus, lacinii oblongo-lanceolatis obtusis, secundariis (lacinulis) linearibus obtusis integerrimis, soris exsertis sessilibus, indusio infundibuliformi alato—*

marginato, limbi laciniis subrotundis, rachi superne alata, inferne stipiteque subnuda pubescente.

"Habitat in insulis Philippinis, verosimiliter in insula Luzon, unde retulit clar. Cuming, et aliis plantis immixtum sine numero communicavit."—p. 47.

13. *D. undulatum*, *Presl*. "*D. glaberrimum*, fronde lanceolata angustato-acuminata pinnata, pinnis petiolulatis lanceolatis acutis profundissime pinnatifidis, laciniis linearibus obtusis integerrimis undulatis, soris exsertis subpedicellatis, indusio infundibuliformi alato, limbi laciniis ovatis obtusis, receptaculo setaceo, rachibus stipiteque alatis, ala undulata.

"Habitat in insulis Philippinis, verosimiliter in insula Luzon, unde retulit clar. Cuming, et aliis plantis mixtum communicavit."—p. 48.

14. *D. serrulatum*, *Presl*. "*D. fronde ovata acuta aut lanceolata utrinque angustata bipinnata, pinnis petiolulatis oblongo-lanceolatis acutis, pinnulis lanceolatis obtusis profundissime pinnatifidis, laciniis inferioribus bilobis superioribus integris lobisque linearibus sinuato-serrulatis, soris exsertis sessilibus, indusii tubo turbinato-infundibuliformi limbi laciniis ovatis obtusis æquilongo, receptaculo setaceo indusium duplo superante, rachibus superne alatis inferne teretibus costisque venisque paleis piliformibus adspersis glabrisve, stipite filiformi paleaceo-hirsuto.* Cuming, *Pl. Exs. Philip.* n. 221.

"Habitat in insulis Philippinis, ubi legit clar. Cuming."—p. 48.

** CHILODIUM.

15. *D. Neesii*. *Tri. Neesii*, *Blume*. *T. denticulatum*, *Blume, excl. syn. Sw. et Willd.* *Hym. humile*, *Nees et Blume*, et *H. dichotomum*, *Nees et Blume*, nec *Cav.*

16. *D. longisetum*, *Presl*. "*D. paleaceo-pubescentis glabratumve, fronde oblongo-lanceolata acuta bipinnata, pinnis petiolulatis oblongo-lanceolatis acutis, infimis suboppositis, pinnulis lanceolatis obtusis inciso-acute serratis basi angustatis, incisuris infimis tri-bidentatis, soris exsertis pedicellatis, indusii tubo cylindraceo-infundibuliformi, limbi laciniis rotundatis denticulatis, receptaculo setaceo longissimo, stipite paleaceo-piloso tereti, rhizomate oblique repente.* Cuming, *Pl. Exs. Philip.* n. 189, et n. 134.

"Habitat in insulis Philippinis, verosimiliter in insula Luzon, ubi legit clar. Cuming."—p. 49.

*** CREPIDIUM.

17. *D. humile*. *Trich. humile*, *Forst.*

Genus, MERINGIUM, *Presl*.

The reader's attention is particularly invited to a very remarkable character in this genus: the involucre, as will be seen from the annexed description, is furnished with two linear-lanceolate, acute, serrated bracteas, which are beautifully exhibited in the figure, *t. viii. f. B.*

"Venæ alternæ, pinnatim ramosæ venulisque subprominulæ et apice libero desinentes. Sorus lateralis, subpedicellatus, basi bibracteatus. Indusii tubus breviter campanulatus, limbo bipartito, laciniis late ovatis obtusis concavis demum divaricatis patentibus. Capsulæ lenticulares, parti inferiori receptaculi filiformis rigiduli crassiusculi indusio longioris affixæ, sessiles. Rhizoma repens, ramosum, filiforme, ramisque radicibusque paleis piliformibus horizontalibus rufis hirsutum. Stipes duos—semiter-

tium pollicem longus, teres, paleis piliformibus flexuosis patentissimis vel divaricatis hirsutus, demum glabrescens. Frons (limbus) fusco-purpurea, tres—quatuor pollices longa, oblonga, basi nempe angustior quam versus apicem, pinnata, pinnis alternis petiolulatis lanceolatis acutis profundissime pinnatifidis vel si mavis pinnatis, in uno latere frondis majores quam in altero, laciniis vel pinnis secundariis sublanceolatis obtusis quinque—quadri—tri—bilobis, lobis linearibus obtusis angulo acuto interstrictis apicem versus argute serrulatis, infimis superioribus pinnularum superiorum in soros oblitteratis et ita angustis ut pedicellum brevissimum mentiantur. Sorus ergo lateralis seu apparenter lateralis, subpedicellatus, multo major quam in *Didymoglossi* speciebus, basi bracteis duabus oppositis lineari-lanceolatis acutis serratis adpressis tubo indusii æquilongis instructus. Indusii tubus breviter campanulatus, limbus tubo duplo longior, profunde bipartitus, laciniis late ovatis rotundato obtusis concavis patentibus demum divaricato-patentibus. Receptaculum indusio triplo fere longius, filiforme, rigidulum, quemadmodum in *Trichomanis* paragrapho tertia *Pachychætum* dicta crassiusculum, cicatricialis spiraliter ambientibus sub lente composita visum instructum, rectum vel curvatum. Capsulæ in inferiori parte receptaculi affixæ, lenticulares sessiles.”—p. 24.

1. *M. Meyenianum*. Hymenophylli species, *Meyen, herb.*

2. *M. Blumeum*. Hym. pectinatum, *Nees et Blume*. Hym. *Blumeum*, *Spr.* Presl places this species doubtfully in *Meringium*.

Genus, *HEMIPHLEBIUM*, *Presl*.

“Rachis in costas duas—tres pinnatim ramoso. Vena inframarginalis, interna, tenuissima, continua, latere interiore venulas plurimas tenuissimas simplices (rarissime duabus in unam coalescentibus) et rachim costamque versus directas ac libere desinentes emittens. Sorus aut exsertus (supramarginalis) subsessilis, aut semiimmersus (intramarginalis). Indusium infundibuliforme, limbo bipartito, laciniis ovato-semiorbiculatis marginatis. Receptaculum indusio longius, filiformi-setaceum, elongatum, basi capsuliferum. Capsulæ sessiles, lenticulares. Rhizoma repens, tenuissimum, filiforme, ramosum, paleis piliformibus fuscis vestitum. Radices minutæ, filiformes, piloso-tomentosæ. Herbula semipollicaris, sæpe minor. Frons hygroscopica, tenerrima, transparent, simplex, bi- triloba, margine pilis stellato-pluriradiatis remotiusculis instructa, paginis conformibus. Stipes vix linealis, fronde decurrente marginatus, ima basi nudus teres tenuissimus, fuscus. Rachis fusca, teres, prominula, juxta numerum loborum frondis in tot costas quoque fuscas teretes vix prominulas pinnatim divisa. Vena tenuissima, exorians ad utrumque latus baseos rachidis, infra marginem frondis circum circa excurrans et continua et cum apice costarum ad dextram et sinistram anastomosans, emittens ex latere interno venulas plurimas rectas tenuissimas versus costam rachimque directas et apice acutissimo libere desinentes ut plurimum simplices rarissime duas in medio latere in unam confluentes. Parenchyma transparens, e cellulis subrotundo-hexagonis subregularibus constructum. Sorus aut exsertus sessilis, vel obsolete pedicellatus aut semiimmersus, in quovis lobo frondis superiori solitarius. Indusium infundibuliforme, convexum, limbo bipartito, laciniis seu partitionibus semiorbicularibus elevato-purpureo-marginatis sinu obtuso interceptis parallelis æquilongis appositis. Receptaculum indusio plus quam duplo longius, setaceum, rectum, punctis spiraliter ambientibus notatum, basi capsuliferum. Capsulæ lenticulares, sessiles, crebræ.”—p. 25.

1. *H. pusillum*. *Trichomanes pusillum*, *Sw.*

(To be continued).

ART. CCXXXI. — *Varieties.*

501. *Note on Cenanthe pimpinelloides.* Allow me to make a few observations upon the notice of this plant (Phytol. 1020 and 1031), in which my name is brought prominently forward; and first, to state that Mr. Ball's paper, which is there referred to, is contained in the last number of the 'Annals of Natural History,' and that a paper of mine, upon the same subject, is already printed off for the next number of that journal. To these I must refer Mr. Lees for the detailed reasons which have led Mr. Ball and myself now to consider that we possess three *Cenantes* in this country, to which the names of *Ce. pimpinelloides*, *Ce. Lachenalii*, and possibly *Ce. peucedanifolia*, may be applied. In common with Mr. Ball, I consider the first to be "very rare," since we only know of its existence in Gloucestershire and Worcestershire, from Mr. Lees' observations, and near Weymouth, from specimens gathered by Mr. Garnons. A "very rare" plant is often abundant in a few places. The observation that this species inhabits dry places is highly interesting, and I believe new, as in all the books to which I have, at this time, the opportunity of turning, the true *Ce. pimpinelloides* (not that of Smith) is stated to inhabit damp places. *Ce. pimpinelloides* (*Linu.*) was quite unknown to me as a British native, until I received information concerning it from my friend Ball, and specimens from Mr. Garnons; and as I had indisputable proof that the plant so called by Smith, is the *Ce. Lachenalii*, I had no other course to pursue in the Manual, than that of omitting the former and introducing the latter name. *Ce. Lachenalii* always, as I believe, inhabits salt marshes, or at least, marshes near the sea, a situation in which the plant called *Ce. peucedanifolia* by English botanists has not, to my knowledge, ever been found. I have so often seen *Ce. Lachenalii* misnamed as *Ce. peucedanifolia*, that I am led to suspect that even Mr. Lees may have fallen into this error, especially as he speaks of the "elliptical sessile knobs" of *Ce. peucedanifolia*, in which the knobs are really of an oblong-clavate form, whilst in *Ce. Lachenalii*, they scarcely deserve the name of knobs, but are rather to be described as long, fleshy, knotted fibres. On this subject however I must refer to the papers already mentioned. It is not necessary to occupy space here with an attempt to determine the plant to which the name of *Ce. peucedanifolia* really belongs, as I have entered fully into the discussion of that very difficult question in the same paper. From the above it will be seen that I venture to differ from one of the conclusions arrived at by Mr. Lees, and put into the form of an abstract by the reporter of the London Botanical Society's meeting, viz.,

doubting if the *Œ. peucedanifolia* of British authors is found in salt marshes, and believing that it is *Œ. Lachenalii* that inhabits them. It is also not a little singular that so acute an observer and excellent a botanist as the compiler of the London Catalogue, having, as we now learn, specimens of both *Œ. pimpinelloides* and *Œ. Lachenalii* before him, should have excluded from his list that which he will probably now allow to be the more common plant, and inserted one which is very local in its distribution.—*Charles C. Babington; Ross, Herefordshire, July 14, 1844.*

ART. CCXXXII.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF EDINBURGH.

Thursday, June 18, 1844. Professor Graham, President, in the chair.

After a delightful walk through the garden and plant houses, accompanied by the learned President, who pointed out many of the beautiful specimens which they contain, the meeting re-assembled in the class-room, when the following papers were read.

I. On four genera of Desmidiæ; by Mr. John Ralfs, Penzance. The genera are *Cosmarium*, *Pediastrum*, *Xanthidium* and *Scenedesmus*, and the descriptions of them, which were accompanied by illustrative drawings, will shortly appear in the 'Annals and Magazine of Natural History.'

II. Continuation of Mr. James M'Nab's Journal of a Tour through part of the United States and the Canadas. — In the previous part of this journal, Mr. M'Nab gave a brief outline of the principal botanical and horticultural features observed in the neighbourhood of New York. The part now read, embraced chiefly the appearance of the country around Albany, with an account of the most interesting plants seen during the journey thither. Among these the most remarkable were several species of *Lycopodium*, with which the peaty soils on the road sides around Albany were covered, consisting of *L. complanatum*, *clavatum* and *dendroides*, the latter resembling at a distance young spruce fir-trees — being similarly shaped and of a lively green colour. In damp situations in the close forests, *Adiantum pedatum* and other ferns covered large tracts, while *Pyrola elliptica* and *rotundifolia*, with *Chemophylla maculata* and *umbellata* were in full flower along the drier parts. *Satyrion herbiola* and *Neottia tortilis* were also observed—the latter growing chiefly in pairs. The principal plants noticed in the meadows or open grounds were *Lilium Philadelphicum* and *Canadense*, *Mimulus ringens*, *Verbena hastata* and *Urticæfolia*, and

Asclepias obtusifolia and *variegata*. Proceeding towards Troy, on the banks of the Hudson, great quantities of *Kalmia angustifolia*, *Cornus florida*, *Lupinus perennis*, *Andromedas*, *Vacciniums* &c., occurred. In an extensive forest, chiefly composed of small trees, and much entangled with *Smilax*, or green brier, through which the party proceeded with great difficulty, *Cypripedium spectabile* covered large patches, with *Arum triphyllum*, the latter in full flower. Mr. M'Nab concluded the present part of his journal with an account of some large trees of the hemlock spruce, *Abies canadensis*, being the first of this tree which the party had observed in natural situations:—the largest specimens were about 10 feet in circumference, and 80 feet in height.

The Honorable G. C. Cunningham, Mauritius, and F. S. Cordier, M.D., Paris, were elected foreign members; and Alfred Greenwood, Esq., Chelmsford, Essex, a non-resident Fellow of the Society.

BOTANICAL SOCIETY OF LONDON.

July 5, 1844.—Dr. Francis Bossy in the chair.

Specimens of the following plants were exhibited, sent to the Society by Mr. Hewett Watson.

Carex elongata (Linn.), found abundantly in Weybridge marshes. This locality is interesting to the metropolitan botanist; the nearest habitat previously on record being in the county of Salop.

A pubescent-flowered variety of *Bromus commutatus* (Schrad.), found plentifully, along with the more abundant glabrous form, in a meadow by the river Mole, between Esher and West Moulsey, Surrey. This variety affords another instance to prove the little importance which can be given to the character of smooth or downy flowers, as a specific distinction in this genus. It will form an addition to the 'London Catalogue of British Plants' (b. *pubens*), to be entered under "*Bromus* (1855) *commutatus*."

A specimen of *Lolium multiflorum*, the root of which was dug up, when in flower, in a sown field last year, and the plant is now copiously flowering in Mr. Watson's garden; thus proving its perennial existence, although the alleged annual root of *L. multiflorum* has been considered the best distinction between this supposed species and *L. perenne*. The other alleged differences are equally invalid.

Garden specimens of *Festuca pratensis* (Huds.) and *F. arundinacea* (Schreb.), to show the strongly marked differences between them; the latter being three times the size, extremely harsh to the touch, and very dissimilar in its flowers and mode of inflorescence. In *F. pra-*

tensis the branches of the panicle are erect after flowering, the paleae or glumes obtuse and awnless, and the sheaths of the leaves nearly smooth : in *F. arundinacea*, the branches of the panicle are horizontal or reflexed, the glumes acute and awned, and the sheaths and leaves very rough.

Mr. W. admitted *Festuca loliacea* and *pratensis* to be forms of one species ; indeed he had shown this to the Edinburgh botanists, just after they had printed their Catalogue, in which *F. loliacea* is kept as a distinct species, while *F. pratensis* is united with *F. elatior* (*Linn.*) But he was not yet prepared to combine all three, and *F. arundinacea* likewise, under the one name of *F. elatior*, as is done by Mr. Babington. Mr. W.'s plant of *F. arundinacea* was originally brought to his garden from the Isle of Wight, and is now a large sheaf, with hundreds of flowering stems, five to seven feet high, and the root-leaves half a yard long.

A specimen of *Oenanthe pimpinelloides* (*Linn.*), to show the cylindrical form of the fruit, which exactly corresponds with that of the Sardinian plant (admitted to be the true species), except in having two callosities at the base. This was taken from a plant in Mr. W.'s garden, the parent of which had been brought thither from a hedgebank in the Isle of Wight. Mr. W. recognized a second species in Britain, often sent to him under the name of *OE. peucedanifolia*, and readily distinguished by its turbinate or elliptic fruit, upon extremely short pedicels, and more resembling *OE. globulosa* than *OE. pimpinelloides*. The peculiar form of the root to some other specimens, resembling that of a *Dahlia* in miniature, induces a supposition that there may be a third species, although Mr. Watson has satisfied himself that the roots vary greatly with age and situation, and do not afford such certain characters for distinction as may be found in the fruit. The *OE. Lachenalii* (of Babington's Manual) is apparently the species frequently sent under the name of *OE. peucedanifolia*, though occasionally named *OE. pimpinelloides* by English botanists. Mr. W. would illustrate this subject more fully on another occasion.

Specimens of the garden fennel, to show the little importance to be attached to the difference of the stems being fistulose or filled with pith. These specimens were sections of stems arising from a single root, of different dimensions, but of nearly equal age and stage of development. Some of them (the thicker) were hollow, others filled with pith. A question respecting a distinction of species, between the wild and garden fennels, has been raised in consequence of one author describing the stems as fistulose, while another finds them solid ; but

since both conditions can exist on one root, at the same time, such a distinction would be quite inadmissible for a specific character.

A stem of *Hieracium Lawsoni*, which had borne twenty flowers in Mr. W.'s garden, this spring; and others had flowered more numerous than this one. In the wild state, on the Grampians (the locality from which the plants were brought three years ago), this species has usually two, three, or four flowers only. He had seen a wild Irish specimen with six or eight flowers. No care had been bestowed upon the plants in his garden, except occasional watering in dry weather, and removal of weeds from about them. Mr. W. sent the specimen merely as an example of the little dependence to be placed upon the number of flowers on the *Hieracia*; indeed among the *Compositæ* generally. A wild plant, growing free from the interference of other plants about it, might also increase its flowers five or ten fold, as practical botanists must be well aware, from observation.

Read, "A Synoptical View of the British Fruticose Rubi, arranged in Groups, with explanatory remarks," (part 4); by Edwin Lees, Esq. F.L.S. The paper was accompanied by drawings and specimens. — *G. E. D.*

MICROSCOPICAL SOCIETY OF LONDON.

June 19, 1844. Dr. J. S. Goodfellow in the chair.

A paper was read by Edwin J. Quekett, Esq., On an apparently new form of vegetable discharged from the human stomach, belonging to the class *Algæ*. Mr. Quekett, after noticing numerous instances where parasitical plants have been found on the exterior of man, as well as of the lower animals, where they constitute diseases which often cause the death of the creature so affected, proceeded to describe several instances where vegetation evidently existed in the interior of the body, and in the stomach especially. In the case alluded to, continued sickness prevailed in a constitution much debilitated by disease of the liver, the matter ejected putting on the appearance of coffee-coloured flakes in a transparent gelatinous fluid. On submitting the flakes to the microscope, they appeared to consist solely of vesicles of about the $\frac{1}{1000}$ part of an inch in diameter, adhering to each other in a beaded manner, seldom however extending beyond three or four, or otherwise in a tetrahedral form. The vesicles appear to contain granular matter, much resemblance existing between them and the yeast-plant, *Torula Cerevisiæ*, but not identical with each other.

After some discussion as to the real nature of these bodies, the Society adjourned until October next.—*J. W.*

THE PHYTOLOGIST.

No. XL.

SEPTEMBER, MDCCCXLIV.

PRICE 1s.

ART. CCXXXIII. — *Notes of a Botanical Ramble in Yorkshire, &c. in the Summer of 1844.* Communicated by JAMES BACKHOUSE, JUN.

ON the 28th of 6th Month (June), our party, consisting of John Tatham jun., of Settle, James Backhouse, James Backhouse jun., and Silvanus Thompson, of York, and G. S. Gibson, of Saffron Walden, left York for Darlington; and thence proceeded by way of Bishop Auckland, to Crook, where we left the railway, and took the road for Wolsingham, distant about six miles, up the valley of the Wear. On the wooded banks of the river we found *Rosa villosa*, *Myrrhis odorata*, *Arenaria verna*, *Geranium sylvaticum*, *Salix nitens* and *Stellaria nemorum*. These plants, with the exception of the two latter, were frequently met with in subsequent parts of our excursion; and they may be considered common plants in this district. We were struck with the large quantity of *Myrrhis odorata*; and we found it so often in places remote from cultivation, that we could not doubt its being indigenous, though supposed by many botanists to be an introduced plant.

Leaving the main river, we turned up one of its southern branches, the Bollihope, in order to visit Bishopley Crag, a series of limestone cliffs between which the river forces its way. Here we saw *Hieracium murorum* (*Babington*), *Crepis paludosa*, *Campanula latifolia*, *Asplenium viride*, *Myosotis sylvatica*, *Festuca calamaria*, &c.; these also, with the exception of the last, are not uncommon plants in Teesdale.

On the moor above the Bollihope, we observed *Festuca rubra*, *F. ovina*, *γ. tenuifolia*, *Viola lutea* var. *amœna*, *Empetrum nigrum*, *Myosotis repens* &c.; and on Middleton Fell, *Saxifraga stellaris*, *Rubus Chamæmorus*, *Carex intermedia*, *Eriophorum vaginatum*, &c. By keeping too far to the south of the ridge separating Weardale from Teesdale, we had to ascend several steep hills covered with ling, and cross the intervening valleys, which, at the end of a long day's journey, was very fatiguing. After a walk of about twenty-seven miles, we arrived late in the evening at the High Force Inn. The country

through which we passed, presented considerable diversity of wood and bleak trackless moors, the latter of which are generally unfavourable for botanizing.

The next morning we set out for Widdy-bank Fell, Cauldron Snout and Falcon Clints; which comprehend a district probably the richest in Teesdale for a botanist. Passing along the Alston road for about two miles, we gathered *Trollius europæus*, *Cnicus heterophyllus*, *Polygonum viviparum* and *Primula farinosa*, which we saw in most of the moist meadows. Leaving the road, we crossed Langdon foot-bridge, and followed the course of a mountain stream, now much diminished in consequence of the long drought. Along its margin we found *Sedum villosum*, *Tofieldia palustris*, *Saxifraga aizoides*, *Bartsia alpina*, *Kobresia caricina*, *Potamogeton plantagineus*, *Cochlearia grœnlandica*? *Armeria maritima*, *β. alpina*, &c.; and on the top of the Fell, *Gentiana verna*, *Thalictrum alpinum*, *Lycopodium alpinum*, *Selago* and *selaginoides*, *Juncus triglumis*, *Carex capillaris*, *curta*, *dioica* and *ampullacea*, *Rubus Chamæmorus*, *Arabis hirsuta*, *Gnaphalium dioicum*, *Plantago maritima*, &c. Here we found a small plant resembling a *Spergula*; but being unable to identify it with any described British species, we transmitted a specimen to Sir W. J. Hooker, and soon received from him the gratifying intelligence that it was *Spergula stricta*, a plant not previously found in the British islands. It occurred very sparingly, and from its growing among *Arenaria verna*, which, when out of flower, bears considerable resemblance to it, it was difficult to detect. We saw no trace of it in any subsequent part of our excursion, although we searched carefully in many likely localities.

We next visited Cauldron Snout, a cataract of the Tees where the river is precipitated in a broken fall of about two hundred feet down a dark basaltic gorge. In consequence of the small quantity of water, this, as well as most of the other falls, was less striking than usual; from the foot-bridge across the fall, a fine view of it is obtained, and the beauty of the scene is increased by a range of lofty basaltic crags, called Falcon Clints, which commence here, and extend along the side of the river for about a mile and a half. We scrambled over the debris at the foot of these crags, carefully examining the face of the scar for *Woodsia ilvensis*: we succeeded in finding three small plants of it, growing in the fissures of the basalt. When first gathered by James Backhouse, twenty-three years ago, it was considerably more abundant and luxuriant than at present.

We noticed also upon the rocks and among the debris, many com-

moner ferns, such as *Allosorus** *crispus*, *Asplenium viride*, *Polypodium Phegopteris*, *P. Dryopteris*, &c. At one place, where the limestone appears, we gathered *Polystichum Lonchitis*, more than fifteen inches in length, but in very small quantity. We also saw *Epilobium alsinifolium*, *Hieracium diaphanum* and *Lawsoni*, *Viola flavicornis*, and a single plant of *Saxifraga umbrosa*, var. *crenata*. In a marshy spot near the junction of Maizebeck with the Tees, we gathered *Saxifraga stellaris* in great profusion, and remarkably large. Returning by Whetstone Sill, we noticed *Habenaria albida*, *Salix arenaria*, *Equisetum variegatum*, *Carex capillaris* and *Bartsia alpina*, the two last nearly a foot in height. We returned to the inn to tea, and afterwards went down to the High Force; the rocks here are of basalt overlaying limestone, down which the river pours in an almost unbroken fall of sixty-nine feet in height, into a dark basin, and runs along a deep ravine among high perpendicular rocks.

Several rare plants are found here, among others, *Hieracium rigidum* and *Lawsoni*, *Crepis succisæfolia*, *Sesleria cærulea*, *Poa Parnellii*, *Melica nutans*, *Potentilla fruticosa*, *Solidago Virgaurea*, & *cambrica*, *Carex rigida*? *Geum rivale* &c.; and on the scars beyond, we gathered *Arbutus Uva-ursi*. This has hitherto been considered the only locality for *Poa Parnellii*, which we found growing abundantly on the rocks, but scarcely come to perfection.

On the 1st of 7th Month we started early for High-cup Scar, taking Falcon Clints on the road, the upper series of which we partially explored, but found little fresh. On the way thither we gathered a few specimens of the rare *Hieracium Lapeyrousii*, and near Cauldron Snout discovered a fresh locality for *Poa Parnellii*.

Leaving Cauldron Snout to the right, we followed Maizebeck from its junction with the Tees; along its banks we gathered *Botrychium Lunaria*, *Myosotis repens*, *Saxifraga stellaris*, &c. Taking a branch of Maizebeck to the left, and following it almost to its source, we crossed over Scordale Head, and visited Gaskill tarn on its summit, a body of water of considerable extent, but affording no plants worthy of notice. Hence we descended towards the head of High-cup Scar, an enormous opening in the mountains of about one thousand feet in depth, nearly surrounded by perpendicular basaltic crags, and resembling in shape the hull of a large vessel: the lower part is chiefly covered with debris interspersed with patches of short grass; it is up-

* In this, and a few other instances, we have, with permission, altered the nomenclature of the ferns.—*Ed.*

wards of a mile and a half in length, and half a mile across in the widest part. The great depth of the valley below, and the dark shade of the rocks, entirely destitute of trees, give the whole a very striking aspect. The view of it from the upper extremity, with the fertile vale of the Eden in the distance, bounded by Helvellyn and many of the Cumberland mountains, is very grand and imposing.

There are several gorges in the sides of the Scar, formed by the descent of mountain streams; and in two of these *Saxifraga nivalis* is found in tolerable abundance (Phytol. 894). We obtained several specimens, though it flowered but sparingly, probably on account of the dryness of the season. Much of it grows in inaccessible places, consequently there is little danger of its being exterminated, although it appears to be confined to a small locality. In these gorges we also noticed a peculiar variety of *Chærophyllum sylvestre*, with deeply incised, shining, dark leaves, and a nearly smooth stem, which we were at first inclined to think a new species, but not being able to discover sufficiently distinctive characters, we were compelled to consider it merely a mountain variety. We also found a third locality for *Poa Parnellii*, which appears to be generally confined to basaltic rocks. *Rhodiola rosea* grows in this Scar in great profusion; *Saxifraga hypnoides* and *platypetala*, *Draba incana* and *Thlaspi alpestre* occur more sparingly.

After a difficult descent to the bottom, we ascended the opposite side, and found *Epilobium alsinifolium* near the source of a small stream. We then followed a track which led to Dufton, a small mining village, where there are two small inns, to one of which we bent our steps.

The next day we explored some other portions of High-cup Scar, but without any great success; we noticed however *Polypodium calcareum*, *Hieracium Lawsoni* and *murorum*, *Melampyrum pratense*, *β. montanum* &c. Returning along Maizebeck we gathered one or two specimens of *Potentilla alpestris* upon the rocks; then crossing the moors, and following the course of the Tees, we came to the foot of Cronckley Fell, a craggy basaltic mountain, about eighteen hundred feet in height. Ascending it on the western side, we again met with *Epilobium alsinifolium*; and on the rocks above, saw *Arbutus Uva-ursi* in great abundance, and remarkably full of fruit: it was formerly collected in the neighbourhood for medicinal purposes. On a grassy slope near the summit we gathered *Dryas octopetala*, *Hippocrepis comosa*, *Helianthemum canum*, *Gentiana verna*, *Juncus triglumis*, *Carex capillaris* (in its usual form, about an inch and a half in height),

Tofieldia palustris, *Saxifraga hypnoides* &c. Descending by a miner's path, we crossed the Tees and returned to our old quarters.

As there were several localities in the vicinity of the High Force which we wished to explore, we concluded to devote the following day to this object, and therefore set out for Winch Bridge, a mile and a half distant. On the road-side we gathered a tetragonous *Epilobium*, which we took to be *E. virgatum* of Babington; we also noticed it in several other places in the course of our journey: observation upon it in its different localities, leads us to doubt its specific distinctness from *E. tetragonum*.

Winch Bridge, is a small suspension bridge for foot-passengers across the high rocks, which here overhang the Tees; it is prettily situated among extensive plantations, and its beauty is much enhanced by the foaming of the river, as it rushes over the rocks beneath. Here we found *Hieracium Lapeyrousii*, *rigidum*, α . and β . (?), *muro-rum*, *umbellatum* and *Lawsoni*, *Crepis succisæfolia*, *Thlaspi alpestre*, *Potentilla alpestris*, *Melampyrum sylvaticum*, *Carex rigida*? *Galium boreale*, *Bartsia alpina*, *Rumex aquaticus*, *Rubus saxatilis*, *Equisetum variegatum* and *sylvaticum*. We also discovered a fourth locality for *Poa Parnellii*, and another single plant of *Saxifraga umbrosa*, β . *crenata*. We also observed an *Equisetum*, evidently different from the common species, which proved to be *E. umbrosum*. Though too late for the fertile stems, the habit of the plant readily distinguished it. It somewhat resembles small plants of *E. fluviatile* [*Smith not Linn.*], but is paler in colour, and has a deeply furrowed scabrous stem, almost destitute of branches on the lower half. It grew in profusion on the Yorkshire side of the river. After having spent a considerable time here, we proceeded northward towards a farm-house called Moor Riggs, and on the way thither met with *Salix laurina* and *amygdalina*: *Pyrola minor* was also gathered sparingly. In a moist meadow near a cottage on the top of a neighbouring hill, we rediscovered *Vaccinium uliginosum*, which had been gathered there thirty years previously, by the late Dr. Oliver and James Backhouse: it is confined to a small space, and we could see no traces of either flower or fruit. Being desirous of examining more completely the various *Hieracia* which abound on the banks of the Tees, we devoted the remainder of the day to this object, although they were scarcely far enough advanced to admit of our doing this satisfactorily.

(To be continued).

ART. CCXXXIV. — *Notice of 'Essays on Natural History, chiefly Ornithology.'* By CHARLES WATERTON, Esq. Author of '*Wanderings in South America.*' Second Series. London: Longmans, 1844.

THE greater portion of this delightful little volume, as may be gathered from its title, is devoted to Mr. Waterton's favourite science, Ornithology; still, it contains quite enough of botanical matter, and that, too, of the most pleasing character, to render it a legitimate subject for a notice in our pages. Even were it otherwise, we should deem it but a partial discharge of the debt of gratitude due to the memory of one, who laboured long and ardently in the cause of science, to aid by our humble efforts the kindly motive which has led to the appearance of the present volume of *Essays*.

The author informs us, in his brief Preface, that when the late Mr. Loudon requested him to write a few papers which might be formed into "a little book of *Essays*," he had awful fears, lest, in disregarding the wholesome truth conveyed in the Spanish adage, — "Happy is the man who has written no more than one book," — he should lose the reputation he had formerly gained by the '*Wanderings.*' "Great then indeed," continues Mr. Waterton, "must be my anxiety on the present occasion, when I am rash enough to deviate another time from the Spanish line of certitude, into the mazes of chance and danger; where the track which I am to pursue is ill defined and flinty, and may possibly lead me and my new little book into some quagmire or other; there to perish without assistance; the scorn of the critics, and the pity of disappointed friends. However, be this as it may, my die is cast, my steam is on, and I am already at the opposite bank of the Rubicon."

In a subsequent paragraph, the author playfully defies the attacks of the critics; telling them that he again offers them half a day of occupation, for which they ought to be thankful, "at a season when work is not always to be obtained." But what critic could dip his pen in gall and therewith record a philippic against a work called into being by one of the holiest impulses that can direct human actions? Who could direct an envenomed shaft against this second volume of *Essays*, after reading the following passage?

"The volume which I now present to an indulgent public, is an unsolicited donation to the widow of my poor departed friend Mr. Loudon, whose vast labours in the cause of science have insured to him an imperishable reputation. If this trifling present on my part shall be the medium of conveying one single drop of balm to the

wound, which it has lately pleased Heaven to inflict on the heart of that excellent lady, my time will have been well employed, and my endeavours amply requited.”—p. iv.

To those who are acquainted with Mr. Waterton’s writings, we scarcely need say that from almost every page of the present volume, beams forth the same enthusiastic love of Nature and Nature’s works as gave life and animation to the previous productions of his pen. And it is pleasant to think that the mind which could conceive and the hand that could trace the living pictures of the ‘Wanderings,’ can still, after the wear and tear of sixty years, present us with such delightful sketches as the following! Sure we are that the heart of every one, who knows aught of the charms of a country life, will acknowledge its truthfulness.

“To me, whom kind Providence has destined to spend the best part of my time in the open air, the song of birds is soothing beyond expression; and whilst I am admiring the beauty of the rising flowers around me, I know no greater addition to my gratification than that of listening to it. How enchanting is it to inspect the early snow-drops, those “fair maids of February,” whilst the stormcock is pouring forth his newly acquired notes from the top of a neighbouring elm! and how delightful it is to hear cock-robin’s carol on the thorn that affords a shelter to the humble primrose! The lily of the valley, too, sweet, lovely, lowly daughter of May, how I gaze in ecstasy on its virgin whiteness, whilst the stranger cuckoo’s note sounds through the dell, and insures me the return of warmer weather! The chaffinch, too, and the whitethroat, and the thrush, and the blackbird, with pretty jenny-wren, and the hedge-sparrow, all add charms inexpressible, by their sweet notes, to the rising flowers of the dale.”—p. 3.

Like most country gentlemen, Mr. Waterton, as is well known, has certain predilections, or, as some would call them, prejudices, both political and religious; but the Wanderer is too amiable ever to allow them to interfere with the charities of private life. And if, sometimes, they *will* make their appearance in an Essay on Natural History, there is always such a redeeming air of pleasantry about them, and a something so droll in the union of the two subjects, that it is quite impossible to suppress a smile, even at the most biting of the author’s sarcasms. Witness the following Essay on

“The Powers of Vegetation.”

“In those good days of old, when there were no corn-factors in England to counteract that part of our Redeemer’s prayer, “Give us this day our daily bread,” by hoarding up vast stores of grain, until mouldiness and vermin have rendered it unfit for the use of man, there stood at Walton Hall a water-mill, for the interest of the proprietor and the good of the country round. Time, the great annihilator of all human inventions, saving taxation and the national debt, laid this fabric low in ruins some sixty years ago; and nothing now remains to show the place where it once stood except a massive millstone, which measures full 17 ft. in circumference. The ground where the mill stood having been converted into meadow, this stone lay there unno-

ticed and unknown (save by the passing hay-maker) from the period of the mill's dissolution to the autumn of the year 1813, when one of our nut-eating wild animals, probably by way of a winter store, deposited a few nuts under its protecting cover. In the course of the following summer, a single nut having escaped the teeth of the destroyer, sent up its verdant shoot through the hole in the centre of the procurrent millstone.

"One day I pointed out this rising tree to a gentleman who was standing by; and I said, 'If this young plant escape destruction, some time or other it will support the millstone, and raise it from the ground.' He seemed to doubt this."

"In order, however, that the plant might have a fair chance of success, I directed that it should be defended from accident and harm by means of a wooden paling. Year after year it increased in size and beauty; and when its expansion had entirely filled the hole in the centre of the millstone, it gradually began to raise up the millstone itself from the seat of its long repose. This huge mass of stone is now 6 inches above the ground, and is entirely supported by the stem of the nut-tree, which has risen to the height of 25 ft. and bears excellent fruit."

"Strangers often inspect this original curiosity. When I meet a visitor whose mild physiognomy informs me that his soul is proof against the stormy winds of politics, which now-a-days set all the world in a ferment, I venture a small attempt at pleasantry, and say, that I never pass this tree and millstone without thinking of poor old Mr. Bull, with a weight of eight hundred millions of pounds about his neck"—22.

Kindly affectioned as he is towards all things that live, yet is Mr. Waterton's love poured out in its fullest measure upon the feathered race. And in proportion as the tenants of air are protected or persecuted, defended or injured by other tribes, so are the latter esteemed or contemned by the kind-hearted Wanderer. These feelings are even extended to the vegetable kingdom; and among trees and shrubs, such as afford to his winged favourites the greatest amount of food and shelter, enjoy the largest share of Mr. Waterton's regard. Of these the holly, the yew and the ivy, have each an Essay devoted to them, all of which claim our attention. And standing first in order, as the tree apparently does in Mr. Waterton's esteem, we begin with a few extracts from the Essay on

The Holly.

"I am very partial to the holly, the yew, and the ivy. They give both food and shelter to the birds; whilst their charming green foliage makes us almost forget that winter has set in. The holly claims my preference; for, in addition to food and shelter, it affords an impenetrable retreat to those birds which take up their quarters on its branches for the night."

"Our ancestors knew and felt the value of the holly hedge, when the wintry blast whistled through the naked hawthorn. Hence they raised it as a barrier against the north; and, on the breaking of the clouds at noon, they would resort to the protection which it offered, and there enjoy the sun's delightful presence. But modern innovation, which, in nine times out of ten, does more harm than good, seems to have condemned the holly hedge as a thing of stiff unsightly form, and in its vacant place has

introduced a scanty sprinkling of isolated plants. I own that I am for the warm arboreal plan of ancient days; and thus I never pass a garden where yew and holly hedges grow, without stopping to admire them, and then I proceed onwards with favourable notions of the owner's taste.

"But, to the holly in particular. I am so convinced of its utility both to men and birds, that I have spared no pains in rearing it as a shelter from the cold, when Boreas, sure harbinger of storms, sweeps over the dreary waste.

* * * *

"I consider a regularly formed clump of hollies to be the perfection of beauty, in grouped arboreal design. One single tree of mountain ash in the centre of this would add another charm to it, and would be of use to the ornithologist at the close of summer. When the holly trees are in full bearing, and the berries ripe, we may roam a long while through the whole extent of British Botany, before we find a sight more charming to the eye than the intermixture of bright red and green which this lovely plant produces.

"I have a fine circular clump of hollies here, under which the pheasants are fed; and to which, throughout the whole of the winter, a vast number of sparrows, green linnets, buntings, blackbirds, and some starlings resort, to take their nocturnal repose in peace and quiet. The holly sheds a large proportion of its leaves after the summer has set in. These remain on the ground in thick profusion. So formidable are their hard and pointed spikes to the feet of prowling quadrupeds, that neither the cat, nor the weasel, nor the foomart, nor the fox, nor even the ever-hungry Hanoverian rat, dare invade the well-defended territory. Hence the birds, which in yew-trees and ivy, would be exposed to inevitable destruction from the attacks of these merciless foes, are safe from danger in the holly bush."—p. 32.

The author feelingly laments over the destruction of the holly-trees, occasioned by a vile practice of "strolling vagabonds," who strip off the bark and sell it to the makers of bird-lime. He says that "so common has this act of depredation been in this vicinity, that I should be at a loss to find a single holly tree, in any hedge outside of the park wall, that has escaped the knife of these unthinking spoilers." An instance is adduced of a magnificent variegated holly, which annually bore a large crop of berries. One morning the bole of this tree was found stripped of its bark for full two feet in length. The tree survived the injury until the third year, when it died.

The Yew Tree.

"I am extremely partial to the yew-tree. It has already repaid me for the pains which I have taken in its cultivation; and when I resort to my usual evening stand, in order to watch the flocks of sparrows, finches, and starlings, whilst they are dropping in upon the neighbouring hollies, I feel not the wintry blast; as the yew trees, which are close at hand, are to me a shield against its fury; and, in fact, they offer me a protection little inferior to that of the house itself.

* * * *

"Charming is the appearance of the yew tree after the sun has passed the autumnal equinox. The delicate crimson of its fruit, with the dark green leaves behind it,

produces an effect so pleasing to the view, that it can scarcely be surpassed by anything which the southern forests present to the lover of Botany, as he wanders through their mazes.

"The hole of this tree possesses the power of effectually reproducing a supply of main branches, after the original ones have been severed from it by the axe of the woodman. At Lupset Hall, the residence of our former honest member for Wakefield, Daniel Gaskell, Esq., there stands a lordly yew, by far the most gigantic of any in this neighbourhood. At some period of time, now long gone by, all its larger branches have been cut away from the stem. Others now supply their place; and by the present healthy aspect of the tree, we may conclude that, at some future day, this second series of main branches will have attained a growth and vigour equal to what the original ones would have presented to us, had they been allowed to remain on the tree."—p. 60.

Speaking of the yew-trees growing near our old churches, Mr. Waterton is of opinion that they were planted in such situations for "the facility of obtaining sprigs and branches to be used during the processions." We must confess this explanation appears to us much more feasible than that which attributes the presence of the tree near the church to the necessity of keeping up "a good supply of bows in case of war."

In the Essay on the Ivy, the Wanderer's character as the champion of calumniated innocence is pleasingly exhibited. The Essay contains a masterly defence of this plant, which has frequently been wrongfully accused of injuring the tree upon which it grows, both by deriving nutriment from the supporting plant, like the dodder and other parasites, and by so closely entwining the branches as to prevent their growth. Mr. Waterton shows that it does neither the one nor the other.

"We live to learn. I was not sufficiently aware of the value of ivy for the protection of the feathered race, until I had seen the pheasant-preserve of the Grand Duke of Tuscany, in the year 1817. It is called the Cascini, and it is a kind of Hyde Park for the inhabitants of Florence in their evening recreations.

"At the grove of the Cascini, you see the ivy growing in all its lofty pride and beauty. As I gazed on its astonishing luxuriance, I could not help entertaining a high opinion of the person, be he alive or dead, through whose care and foresight such an effectual protection had been afforded to the wild birds of heaven, in the very midst of the 'busy haunts of men.' The trees in this ornamented grove are loaded with a profusion of ivy, from their lowest to their topmost branches; and although crowds of fashionable carriages were rolling along the road which surrounds this preserve, I saw our common pheasant roving through its walks, with a confidence little inferior to that of our own domestic poultry. As the evening closed in upon us, I observed multitudes of the smaller birds resorting to the 'ivy-mantled' trees, in order to enjoy the proffered convenience of nocturnal rest and safety.

"I have profited by what I saw in Tuscany, — for, on my return to my native place, I began the cultivation of ivy with an unsparing hand.

"There are two sorts of this ever-verdant plant. The one is denominated English, the other Irish ivy. Both are exceedingly graceful in their foliage; but the first is by far the better bearer of fruit. They will grow on any soil, save that of swamp. Whilst the plant is on the ground, you have only to cover its long runners with a little earth at intervals of four or five inches, and you will soon have an abundant supply of ivy for ornament; and for use, as far as the birds are concerned. This is a surer way of obtaining plants, than by cutting them at once from the climbing ivy.

"Ivy can only attain its greatest perfection through the intervention of foreign bodies. It travels onward in a lowly state upon the ground, until it reaches some inclined or perpendicular object, up which it ascends. In due time it then puts out lateral branches, and obtains a bole, as though it were a forest tree itself. Ivy derives no nutriment from the timber tree to which it adheres. It merely makes use of a tree or wall, as we ourselves do of a walking-stick, when old age or infirmities tell us that we cannot do without it. Should an ancient wall and ivy come in contact, they are of great assistance to each other. Dyer observed this on Grongar hill: —

‘Whose aged walls the ivy creeps,
And with her arms from falling keeps:
So, both a safety from the wind
In mutual dependence find.’

There can be no doubt as to the real source from whence ivy draws life and vigour: from the ground alone its maintenance proceeds. To be convinced of this, we have only to inspect it narrowly on a living tree, and then pay the same attention to it upon a dead one, or upon any stump deprived of vitality. Be our eye as keen as that of the lynx, we shall not be able to perceive that the one plant is more healthy, more vigorous, or more verdant than the other; and if we cut through the stock of the ivy in either situation, we shall see that its upper parts will wither and die, down to the place through which the knife has passed.

"Some few years ago, a tall sycamore tree stood on this island, in a row with four others. A remnant of its once fine bole still occupies the place which the tree adorned in the days of its prosperity. An unexpected appearance of fungus showed that all was not right within; and, ere long, a gale of wind cut the tree nearly in two, sending its head and all its branches (saving one), with a colony of young jackdaws, down into the lake below. The remaining portion of the tree, spared by the gale, put out new shoots from every part of its circumference. But scarcely had these vegetated for four succeeding summers, when another immense fungus made its appearance about two yards from the truncated top, and all vegetation ceased that year, down to the part where the fungus had come out. Below this, the trunk was still alive; but another fungus, of equal dimensions with the last, showed itself about five feet from the ground, and deprived the bole of all vegetation upwards.

"At length this sickly remnant of the sycamore tree received its final doom; for, last summer, a vast profusion of fungus pushed up its circular cakes even from below the surface of the ground; and on their coming to maturity all the living powers within this ill-treated tree expired. The bole now stands a dead and unproductive stump. Any day, a north-west wind, sweeping across the water, may lay it low for ever. Did the ivy, which I had planted at the base many years ago, depend upon this bole for succour, it would now be dead and withered; but, on the contrary, that remaining part of it, free from mutilation when the different portions of the tree fell down, is now in verdure, and in prime vigour; but as it has no longer an opportunity of creeping

upwards, on account of the misfortunes which have befallen the tree, it has assumed the form of a bush, with dense and widely spreading foliage."—p. 68.

Mr. Waterton planted ivy at the foot of many trees, "and refused it to others in the immediate vicinity, and on the same soil," but a minute inspection shows no difference in the appearance of the trees, all being equally healthy and flourishing. He continues:—

"Neither is this to be wondered at when we reflect that the ivy has its roots in the ground itself, and that it does not ascend in spiral progress round the bole and branches of the tree; its leading shoot is perpendicular. Hence it is not in a condition to compress injuriously the expansive powers of the tree, proportionally stronger than its own. Thus we find that the ivy gradually gives way before them; so that on removing the network (if it may be so called) which the ivy has formed on the bole of the tree, we find no indentations there.

"But woodbine acts the reverse of this. Its process is spiral, and it becomes, as it were, an immovable heap on the plant which it has embraced. As the woodbine, by its circumambient position cannot give way, the plant must consequently protrude wherever it is not compressed, till at last the woodbine becomes nearly buried in it. Thus we account for the fantastic form of walking-sticks, which are often to be seen at the shop doors of curious venders. The spiral hollows in these sticks are always formed by the woodbine, never by the ivy."—p. 73.

Before we conclude we must direct our readers' attention to one thing which the author has much at heart. Mr. Waterton is exceedingly anxious that trial should be made of the Wourai poison, in cases of that dreadful and hitherto incurable malady—*hydrophobia*. He observes, that it is right to give the sufferer a chance of saving his life by the application of an untried agent of great power, which, even if it do not save life, would at least "render death calm and free from pain." In cases of *hydrophobia* Mr. Waterton wishes that early application should be made, either to himself, at Walton Hall, Wakefield, Yorkshire; or to Mr. Sibson, at the General Hospital, Nottingham. Such application "will be most punctually attended to."

The few choice extracts we have culled from this delightful book, will, we trust, have the effect of inducing our readers to aid the benevolent design of the amiable Wanderer, by purchasing the volume itself. To its pages we would refer for much pleasing matter relative to the culture of the holly, the yew and the ivy; gigantic raspberries, wild and cultivated, fourteen feet high; quadrupeds, birds, scenery, adventures by sea and land, both pleasant and perillous;—all these subjects, and numerous others, are graphically treated in the *Essays*, and in the 'Continuation of the Autobiography of the Author' thereunto prefixed. And further, we would express a hearty hope, that the accomplished author may be led to reconsider his determination, and so favour us, at no distant period, with more of his delightful *Essays*.

ART. CCXXXV.—*Varieties.*

502. *Note on Anthyllis vulneraria.* In reply to Mr. C. C. Babington's enquiry (Phytol. 1019) respecting my diadelphous state of *Anthyllis vulneraria*, I regret to state that all the specimens I have by me are monadelphous, or, as Mr. Babington observes, with one filament free at the base and summit. What became of the identical plants I examined in the fresh state, I know not. Mr. Ralfs, to whom I showed my plant before I sent the note for insertion in your pages (Phytol. 1000), desires me to say that on my mentioning the subject to him, he supposed me to be in error, or to have separated one filament by violence in dissection; but on examining a flower in my specimen, found it decidedly diadelphous.—*Alfred Greenwood; Chelmsford, June 26, 1844.*

503. *A few more words on the London Catalogue.* For reasons best known to himself, your respected correspondent, the attempted vindicator of the London Catalogue (Phytol. 1014), has carefully left untouched the main points of Mr. Sidebotham's letter or critique in the May No. (Id. 972). He may say, perhaps, that the details of the letter occupied no place in his attention while penning the defence: in fact he tells us at the outset, that he writes merely at the suggestion of the "editorial note" appended thereto. But standing forth as does Mr. Dennes, the champion of the new list, especially too as he condescends to notice *some part* of the letter, it was certainly to be expected that he would have entered at greater length upon its more important portions. To this, again, he may reply by repeating that Mr. Sidebotham's strictures were mostly founded on misapprehension, and therefore did not call for special answer. If it is a misapprehension that *Viola odorata* is marked in the list as an introduced plant, and that the numerous changes specified by Mr. Sidebotham, are meant to be literally interpreted, of course there is no need for explanation. But there can be no mistaking the facts which he has cited; and, as the letter was simply one of enquiry, — as Mr. Sidebotham evidently had no other object in view than ascertaining the reasons for certain changes, I do hope next month's 'Phytologist' will be a satisfactory one in the matter of reply. To come however to particulars, Mr. Sidebotham never "accused" the London Society of making "extensive changes in nomenclature." He merely enquired why the new nomenclature introduced by the Edinburgh Catalogue and other publications, with good *stated* reasons, was not adhered to, instead of older names being in great measure restored. This circumstance is the more remarkable from the interest which the London list professes to take in the convenience of foreign botanists: inasmuch

as it rejects the very means which the Edinburgh Catalogue tells us is best calculated to promote it, namely, similarity of names ! By the way, when dethroning the usurper, *Carex irrigua*, and restoring the rightful appellation of *glauca*, why not carry out the principle, and print *humilis* instead of *clandestina* ? A far more important feature in the London Catalogue, is the change of rank forced upon certain species and varieties. Mr. Dennes does not even touch upon this : because the cases quoted by Mr. Sidebotham were "misapprehensions" I presume. I may be falling into the same error myself, nevertheless, I beg to enquire for information's sake, why *Ranunculus fluitans* is only a variety, while *circinatus* is a species ? Why is *Lotus major* a species, and *hispidus* a variety ? Why are *Scirpus pungens*, *Rumex aquaticus*, *Juncus diffusus* and *Prunus avium* varieties only ? Why is *Senecio aquaticus* only a variety of *Jacobæa* ? Why is *Scrophularia Ehrharti* a var. of *nodosa* ? Why are *Potamogeton filiformis* and *zosteraceus* varieties, if *oblongus* and *plantagineus* are species ? Why separate *Lamium album* and *maculatum*, and combine *amplexicaule* and *intermedium*, the two former being more nearly allied than the two latter ? If *Glyceria Borreri* is to be referred to *distans*, why not both to *maritima* ? And lastly, if *Carex irrigua* is a variety, why not also *rariflora* ? Then again, we have several novelties in genera, which it would be desirable to have explained. For instance : — Why is *Armoracia* adopted, and not *Erucastrum* ? Why *Schoberia* and not *Halimus* ? Why are *Sinapis Monensis* and *S. Cheiranthus* placed in that genus, and not in *Brassica*, whilst *nigra*, *incana*, *muralis* and *tenuifolia* are also there ? As to the distinction of native and naturalized species, it appears to me that nothing could be more straightforward than Mr. Sidebotham's enquiries. He did not so much seek to ascertain the motive for including or excluding certain species, as to elicit the *principle* or *plan* which had been followed in estimating our Flora, as elsewhere in re-adjusting nomenclature and relative rank. What is there in his letter that can be said to justify or even to call for Mr. Dennes' ironical challenge ; especially when it so overflows with "misconceptions" ? May I ask why *Ononis reclinata* is not, while *Veronica Buxbaumii* is, a true native ? What difference is there between the claims of *Fedia auricula* and *F. carinata* and *dentata* ? Why give *Bupleurum falcatum*, *Salvia pratensis* and *Achillea tomentosa* as naturalized ? Has *Narcissus Pseudo-narcissus* any better right to be called wild than *Galanthus* ? It would be easy to ask fifty more such questions with reference to the London Catalogue. For the present I will leave it. Should we be favoured with another vindictory letter, I do hope it will bear upon

the points at issue rather than those minor features of the list, which, as no one would object to them, require no further remark.—*Leo. H. Grindon ; Manchester, July 8, 1844.*

504. *Note on Anthyllis Vulneraria.* The observations in the two last numbers (Phytol. 1000 and 1019), have induced me to examine more closely the position of the stamens in *Anthyllis Vulneraria*. The plant grows close at hand in this neighbourhood, and in great abundance upon the cliffs and broken land ; I have thus been enabled to consult numerous specimens. But as the result of my enquiries does not appear to agree with the remarks either of Mr. Greenwood or Mr. Babington, I give it in full, hoping some light may thereby be thrown on the subject. One stamen is *perfectly free* at the base and extremity, as in *Diadelphia* ; and, in the young state of the plant is united to the other nine, as Mr. Babington observes, throughout most of its length : but generally [separates] *first* from the base, meeting and joining the left hand united filaments ; and at the summit separating *last* from the filaments on the same side. I *have* found it adhering to the filaments on the *right* hand. This is the state of the stamens before the bursting of the anthers ; after they have performed their function, the central stamen gradually separates from the right hand united filaments, continuing more or less adherent to those on the left. In some instances I have found the separation so decided that the single stamen could be removed without difficulty. When the seed is matured it forces its way through the slit, but owing to the shrinking and contraction of the stamens at their summit, a curious appearance is presented, the threadlike style being still confined at its extremity.—*F. Townsend ; Steephill, Isle of Wight, July 21, 1844.*

505. *Note on Iris foetidissima with double flowers.* I beg to enclose you a double blossom of *Iris foetidissima*, which I found to-day growing near this town. I do not know whether it is sufficiently rare to merit a notice in a botanical journal ; but never having seen a double *Iris*, either among cultivated or wild plants, I thought it might prove interesting to you. The plant was growing in a ditch, among some tufts of common ones, and had three or four bunches of flowers as double as those I now send ; while upon the other plants the seed was nearly ripe.—*Robert Battersby, M.D. ; Torquay, July 29, 1844.*

506. *Crepis biennis a Kentish Plant.* As I believe considerable doubt has been entertained with reference to the occurrence of *Crepis biennis* in Kent, the very different and distinct *Barkhausia taraxacifolia* having been repeatedly mistaken for it ; I have much pleasure in communicating to the pages of 'The Phytologist,' a recently verified habitat for the true plant ; my specimens of which, several of them

full four feet high, I had the good fortune to meet with in June last, at the hamlet of Bush by Cuxton, growing near the copse or shaw by the foot-path, just beyond and leading from the street of Bush, over the meadows and cornfields, towards Halling on the Medway. My plant is identical with authentic specimens collected near Cambridge a few seasons ago; and likewise with others from near Twynose, Leicestershire, kindly contributed to my herbarium by the Rev. Andrew Bloxam.—*Edward Edwards, Bealey Heath, Kent, August 8, 1844.*

507. *Silene Armeria*.—Of this interesting plant, formerly noticed "on the banks of the Dee near Chester, and by the Ribble beyond Settle, Yorkshire," but now no longer to be recognized in those localities, I obtained several good specimens last year from a very wild station near the Medway, towards Yalding, far from house or garden; and a few others this season, from the same spot, although (probably from the excessive drought, with which we were so long visited,) of dwarfish growth.—*Id.*

508. *Diapthus Armeria*.—Mr. Babington marks this species as "rare," (Manual, 40). It occurs in many places near here. It affects chalky and gravelly wastes and banks; I have noticed it in abundance this season at Crooking-hill, between St. Mary Cray and Farningham; at Stone, beyond Dartford; and in numberless other localities in the cross-country lanes between Farningham and Gravesend.—*Id.*

509. *Plants at Erith, 1844.* (To the town-farmered student, whose opportunities for botanical strolls, being few and far between, render of value the mearest hint as to the locality of an interesting plant, I beg to observe that I have noticed this season at Erith, growing about the marshes and wastes, within the shortest distance from the newly erected pier, among numberless more common species, — *Polypogon Monspeliensis*, *Apera Spica-venti*, *Barkhausia taraxacifolia* (very abundant), *Petroselinum segetum*, *Oenopordon Acanthium*, *Sisymbrium Sophia* and *Carduus tenuiflorus*; the three last named most plentiful and luxuriant.—*Id.*

510. *Plants at Eltham, 1844.* *Hutchinsia petraea* still retains its old haunts about the walls of the church-yard. I gathered fine specimens from thence in April last. This is the only recorded station for *Hutchinsia* near the metropolis; which, if the plant be truly indigenous here, is a very interesting fact. Misgivings have arisen among botanists as to the possible introduction of its near neighbour, *Centranthus calcitrapa*, which has located itself on the same and adjoining walls; but I am not aware that the truthfulness of this station for *Hutchinsia* has ever been questioned. *Centranthus calcitrapa* also

appeared this year, but certainly not in abundance (Phytol. 617). The old walls of Sherard's garden have been lately repaired, and the interstices cemented and otherwise filled up, to the probable eventual destruction of our plant. *Linaria purpurea* will doubtless in time be well established at Eltham: I could have collected upwards of a wheelbarrow load in July, all self sown about walls and wastes. *Oxalis Acetosella*, *B. purpurea* occurs, but very small and sparingly, in the woods near the Castle, towards Shooter's Hill. *W.*

511. Note on *Asplenium fontanum*. I was rather disappointed to find that the author of the 'History of the British Ferns' has not noticed *Asplenium fontanum* in the new edition of his work. On the 19th of last month I had the pleasure of receiving from Henry Shepherd, of the Liverpool Botanic Gardens, a single frond of a wild specimen, found by himself in the year 1826, on the rocks above Matlock. *Silvanus Thompson, Friends' School, York, 8th month 5, 1844.*

512. Note on Mr. Gibson's Paper on *Caricés*.—Although I fully agree with Mr. Gibson's observation on the value of scientific controversy (Phytol. 1092), when conducted in a proper spirit, and solely with a view to elicit truth, yet, as I see no utility in prolonging the discussion on the disputed *Caricés*, unless some new facts could be advanced, on either side of the question, I have not the slightest intention of replying to that gentleman's criticisms. But as I have been unfortunate enough to call forth some severe observations relative to the share which two of my esteemed correspondents have had in the matter under discussion, I deem it my duty to take up the cudgels in their behalf, and in one instance to expose something very like a *mistake*, to give it no harsher name, into which Mr. G. appears to have fallen.—In the first place, in justice to Mr. Sidebotham, I must beg to state, that all the specimens of the disputed *Carex* which I have received from that gentleman, perfectly agree with those subsequently forwarded by Dr. Wood. And further, that in the course of my correspondence with Mr. S., I have not once had occasion to accuse him of carelessness or negligence in naming the specimens of plants with which he has favoured me. The mistake which he candidly confessed to Mr. Gibson, is one which any of us might have run into; and having been acknowledged in the confidence of a private letter, that confidence certainly ought not to have been violated. In the second place, with regard to the discovery of *Carex paradoxa* in Yorkshire, quoting Mr. Gibson's *own* words, I may remark, that what he has "said on the subject, would, I think, have been much better if it had been correct." Wishing to see when and by whom Mr.

Spruce had been anticipated in his discovery of that plant in Yorkshire, I carefully looked through Baines's 'Flora of Yorkshire' (to which Mr. Gibson refers us for this information), aye, examined it "from title-page to colophon," Addenda and all, but not a word could I find about *Carex paradoxa*. The only Carices named as growing in Ascham bogs, are *C. teretiuscula* and *C. Pseudo-cyperus*; and neither under these species, nor in any other part of the book, so far at least as I can see, is there anything to invalidate the claim of Mr. Spruce to the honor of having been the first to discover *C. paradoxa* in Yorkshire, and consequently in England.—*Geo. Luxford; August 4, 1844.*

513. *Note on Mr. Gibson's Remarks on Carices.* On receiving the last number of 'The Phytologist,' I was a little surprized to find that Mr. Gibson, in the exercise of his combative propensities, has thought fit to make an unprovoked attack upon me. As it is *just possible* that some one may be misled by it, I trouble you with a word of explanation. Mr. G. speaks of my sending the fruit of *Carex teretiuscula* to Mr. Babington, *by mistake*, instead of that of the supposed *C. pseudo-paradoxa*. The mistake was speedily discovered and as speedily corrected. Did Mr. Gibson never make a mistake? He says that *Carex paradoxa* was published in Baines's 'Flora of Yorkshire,' (Phytol. 1049); has any one else seen it there? He complains that I have sent *different* plants to several individuals as his *Carex pseudo-paradoxa*. The fact is, a somewhat variable plant grows at Seaman's Moss-pits; this plant Mr. Gibson says is a new one, and he calls it his *Carex pseudo-paradoxa*. The specimens sent by me to Mr. Luxford and Mr. King, and to which he alludes, *were all collected there*. If the plants will not square exactly with Mr. Gibson's description, it is their fault, not mine; of course, Mr. Gibson cannot be under a *mistake*. Mr. G. has no occasion to visit Seaman's Moss-pits to obtain his plant; it grows in several places in the immediate vicinity of Manchester, presenting variable appearances, which differ almost as much from each other, as from the *normal state* of *Carex teretiuscula*. — *Joseph Sidebotham; Manchester, August 6, 1844.*

514. *Note on Coronopus didyma.* It may not be uninteresting to the London readers of 'The Phytologist,' to know that the West of England plant, *Coronopus didyma*, occurs rather plentifully in Kew church-yard. I found it in that locality yesterday. It is probably a derivative from the Royal gardens, but it seems to have made itself quite at home, and promises to become a permanent addition to our Flora, if collectors will but show it a little indulgence. — *Edwd. Palmer, M.B.S.L.; David Pluce, Poplar, August 9, 1844.*

515. *Excursion of the Linnean Club.* The Linnean Club made its first excursion for the season, on Wednesday, the 3rd of July. Black Nottley church-yard, the burial place of the immortal Ray, being fixed on as the terminus of their pilgrimage, the members of the club left London by an early train, and arrived at the Witham station of the Eastern Counties railway about 10 o'clock; thence repairing to the White Hart at Witham, they sate down to a most substantial breakfast, which completely fortified them for their journey to Black Nottley, a distance of five miles, safely accomplished in a variety of carriages. Arrived at Black Nottley, they were met by Mr. Patterson, the present resident in the house once occupied by the illustrious naturalist in whose honour the excursion was projected. Mr. Patterson invited them to call on him, and gave them a very cordial reception, having provided an elegant and bountiful luncheon. When the members of the club felt sufficiently recruited by partaking of Mr. Patterson's good fare, they re-entered their carriages and returned to dine at the White Hart, at Witham, Mr. Forster, V.P.L.S., presiding. The dinner passed off with the utmost unanimity and good feeling; and the party returned to London by the half-past 6 o'clock train, and arrived at Shoreditch about 8, highly delighted with the day's occupations, and unanimously regretting that, owing to the arrangement of the trains, they could not have prolonged their stay to a later hour. There were present, the Lord Bishop of Norwich, P.L.S. (who was obliged to return to London in the early part of the day), Dr. Robert Brown, V.P.L.S., Edward Forster, Esq., V.P.L.S., Dr. Lankester, and Messrs. Yarrell, Bell, Harrison, Milne, White, Solly, Bennett, Taylor, Winterbottom, Anstead, Forbes, Clarkes (of Saffron Walden), Kippist and Van Voorst. — "*From our own Reporter.*"

516. *Note on the British Species of *Ænanthe*.* While at home for only two or three days, I have seen Mr. Babington's note on these plants (Phytol. 1060), and I trust that some words of comment upon it may be in time for a hint to collectors in September. Mr. B. says that he knows of localities for *Æ. pimpinelloides* only in three counties. I possess imperfect specimens from other localities than those named, and have gathered the same species on a hedge-bank in the Isle of Wight. But not having obtained any series sufficient to show both root and fruit from the same locality, I was unable to speak with confidence about them, before seeing the specimens from Mr. Lees; because, the other characters (taken from the leaves and involucre) were inadequate to separate my specimens of *Æ. pimpinelloides* from those received as *Æ. peucedanifolia*. On comparing the specimens

from Mr. Lees with my cultivated plant, which I knew to be the species, thus named from the *Unio Itineraria*, the existence of the same species in Britain seemed sufficiently certain; and I presume it likely to be found scattered through great part of England. I cannot say that I yet know exactly what Mr. Babington means by *CE. Lachenalii*, and should not be surprised to find it identical, as a species, with the *CE. peucedanifolia* of the same author. At all events, I have never seen British specimens with roots such as are described for the *CE. Lachenalii*. But I have already explained, in the *London Journal of Botany*, (Feb. 1844), that the roots of *CE. pimpinelloides*, and probably also those of "*CE. peucedanifolia*?" (so usually named by collectors) vary very much with age; appearing absolutely without tubercles or other enlargements at one season of the year, if the withered remains of those of the preceding summer be overlooked. I can now add that I have seen long, fusiform, fleshy, sessile roots (much like those of the *Dahlia* in miniature) on the true *CE. pimpinelloides*, although the roots of that plant are usually slender, with an oval tubercle on each, an inch or two below the base of the flowering stem. I would here request collectors to obtain materials for determining whether really there are *two* other species in this country, in addition to *CE. pimpinelloides*, which is quite clear and certain. (Not having yet seen the papers of Mr. Bail and Mr. Babington, in the *Annals*, I am still unaware what evidence they adduce to establish *the two* other alleged species. The *CE. peucedanifolia* of the *London Catalogue* includes both these two species, if two such exist. Until reading the note of Mr. Babington, I was fully under the impression that I had sent him, last winter, specimens of *CE. pimpinelloides*, to illustrate the changes in the character of its root, with advancing age, at the same time informing him that the specimens were descendants from a plant collected in the Isle of Wight. — *Hawett & C. Watsons & Thomas Dutton, August 16, 1844.*

517. *Yorkshire Locality for Asplenium fontanum.* Allow me to add to the already few habitats for that rare fern, *Asplenium fontanum*, Smith, three fronds of which I collected in Wharnciffe wood, Yorkshire, in the year 1838, and which I now enclose for your inspection. I shall feel obliged by your returning them at your leisure, as they are all the wild specimens in my herbarium. I have this year, July, 1844, examined the locality, but have not been successful, not being able to find the precise spot where I gathered the enclosed. — *R. Milne Redhead; Cliffe Point, Broughton, Manchester, August 29, 1844.*

518. *Yorkshire Locality for Eastrian Thelypteris*. In July of the present year, I found two imperfect fronds of *Eastrian Thelypteris*, Presl, in a damp place in Wharfedale wood, a locality which Mr. Newman has not named, either in his County List of Yorkshire ferns (Phytol. 449) or in his late edition of the Ferns. I left the roof, not wishing to destroy the habitat, and could not discover more than two fronds. A single plant of *Neottia Nidus-avis* grew near it.—*Idl.* 113

519. *Reply to the Enquiry about Bartramia falcata*, Hook. & Grev. Trans. Soc. (Phytol. 1085). I have examined the original specimen, and consider it to be as distinct from *Bartramia calcarea*, Br. & Sch., as that species is from *B. fontana*. *B. uncinata* (Schwagr., Suppl. 4, 57) may be a small variety of *B. calcarea*, but the locality (Guadeloupe and Martinique) renders this inference somewhat hazardous. *B. calcarea* grows on Hale Moss, near Altrincham, Cheshire, with both kinds of inflorescence, but without fruit: I have never seen it elsewhere. On the subject of *B. calcarea*, I must beg leave to say, that the unilateral direction of the leaves is not, in every species of moss, perhaps not even in this, a character to be safely depended upon. The seta in *Bartramia*, as in all acrocarpus genera, is essentially terminat. *Andreaea nivalis* and *A. Rothii* are abundantly distinct species, but I cannot say as much for *Dicranum falcatum* and *D. Starkii*, which, on the Clova mountains, présent many intermediate forms. The true calyptra of *Polytrichum* is the small scarious integument immediately in contact with the operculum. I have myself met with similar instances to that described by Mr. Edmonston. The apparent unity of the two calyptræ arises simply from mutual adhesion of the hairlike fibres which cover the true calyptra, and are inserted near its apex. Such an appearance may be expected whenever two perfect and contiguous archegonia are developed. I have a specimen of a *Bryum*, where two setæ, in similar circumstances, have become incorporated in their lower half, presenting the appearance of a forked fruit-stalk. With regard to the validity of the species retained or proposed as such by Bruch and Schimper, every one will form his own judgment; but I would suggest the propriety of studying the subject with diligence and attention, before any condemnation be passed upon their positions. This is the least mark of deference due to authors, who have the merit of having abolished so many spurious species, and of having reduced them to their proper rank of varieties. Whatever praise they are entitled to as *discriminators*, they have acquired it in consequence of having systematically applied those very characters which Mr. E. terms trivial. Perhaps these may find more

favour in his eyes on further acquaintance, or he will see it necessary to modify still more his encomium. Though I do not agree with Br. and Sch. on every point, I should hesitate to pronounce any such censure as that contained in Mr. E.'s remarks. Their work deserves to be studied, and should not be lightly criticised.—*W. Wilson ; Warrington, August 22, 1844.*

520. *Teucrium Botrys* found in Surrey. On Saturday last, the 17th instant, when in company with Mr. Wm. Bennett, I found several fine plants of *Teucrium Botrys*, in a wild stony locality, far from any house or garden, at the back of Box-hill, in Surrey.—*T. Ingall ; August 23, 1844.*

ART. CCXXXVI.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF EDINBURGH.

Thursday, July 11, 1844.—This day the Society held its last meeting for the session, at the Royal Botanic Garden. Professor Graham in the chair.

The Treasurer read a paper on three genera of Desmidiæ, by Mr. John Ralfs, Penzance, viz., *Desmidium*, *Glæoprium* and *Schistochilum*.

Mr. James M'Nab read a portion of his *Journal of a Tour in the United States and Canadas*. In the last notice, Mr. M'Nab gave an account of the excursion from Albany to Troy, and thence to Stillwater, with notices of the most interesting plants observed during the journey thither; the present portion is chiefly confined to observations on the Botany of the same district. July 15.—In the early part of the day a severe thunder storm, accompanied with much rain, prevented the party from going abroad, but afforded an opportunity for arranging the specimens already collected. The storm having abated towards the afternoon, they were enabled to make a short excursion along the banks of the Hudson; few species, however, rewarded their exertions, the greater portion being out of flower; of those gathered, the most attractive were *Lobelia cardinalis* and *Habenaria fimbriata*, both in great abundance, the rich spikes of scarlet flowers of the former being admirably contrasted with the delicate purple blossoms of the latter: these two species formed the bulk of the flowering plants. Mixed with them, but more sparingly, *Habenaria lacera* and *Neottia cernua* occurred, with *Apocymum androsæmifolium*, the latter being the most abundant, and covered with a beautiful Coleopterous insect, which appeared to be peculiar to it. On the sloping banks of the

river, in thickets of sumachs, hazels, willows, &c., a gigantic species of Solomon's seal, *Polygonatum latifolium*, was observed; some of the specimens measured seven feet nine inches in height, with roots four inches in circumference. In several places the ground was so matted over with the stems of the poison oak, *Rhus toxicodendron*, that the hands of the party were much blistered in endeavouring to extricate themselves. July 16.—Having procured a canoe, the party proceeded about two miles down the river; during this short voyage they observed vast quantities of the shells of the fresh-water muscle, covering the little sandy hills by the river's edge, which had been collected by the musk-rats, with which the banks everywhere abound. At this place the rapidity of the stream, which had hitherto prevented the growth of aquatic plants, became much diminished, and they now observed large portions of its surface covered with *Nuphar Kalmiana* and *advena*, together with *Nymphæa rosea*, all beautifully in flower, and growing from a depth of eight feet. Overhanging the banks on both sides of the river, *Salix petiolaris* was in fine condition, its broad, lunate stipules adding much to the beauty and singularity of its appearance; here also, some fine specimens of the Virginian poplar (*Populus monilifera*) were seen, the largest stems measured were nine feet in circumference, and about seventy feet in height.

Leaving Stillwater, the party proceeded by canal to Whitehall. On the banks of the canal, and extending over the neglected fields, such quantities of the great mullein (*Verbascum Thapsus*) were observed, as to give the idea of its having been sown for a crop. The fact of its growing on the soil which had recently been thrown out of the canal, as well as on the sloping banks, convinced them that the seed must have lain buried in the earth, probably for a long series of years, and that, therefore, it is not likely, as has been generally supposed, that this plant has been introduced by the emigrants, but rather that it is indigenous to the country. The common St. John's wort (*Hypericum perforatum*) was also extremely abundant in this district, although sparingly seen before, and is described by Mr. M'Nab as one of the greatest evils the American farmer has to contend with, being supposed to be highly injurious to cattle, especially horses, causing blindness, which prevailed in many parts to a fearful extent.

On reaching Whitehall, situated at the southern extremity of Lake Champlain, two remarkable species of ferns were observed for the first time; namely, *Asplenium rhizophyllum* and *Aspidium bulbiferum*: the former growing on the surfaces of moist rocks, where it throws out its fronds, which take root at their extremities; while the latter bears

a number of small bulbs along the rachis, which, when mature, fall off and vegetate in the crevices of the rocks. Many other interesting plants were observed, but few of them in flower, with the exception of *Rubus spectabilis*, *Desmodium acuminatum* and *canadense*, and a few others.

Mr. M'Nab afterwards exhibited several specimens of gooseberries and currants, which had been kept for the last two years in glasses, containing water only, in which they had now matured their fruit for the second time; and it was remarkable that the gooseberries (*yellow amber*), and the red and white currants, were as highly flavoured as the same sorts under ordinary treatment.

Mr. Trevelyan exhibited specimens of some remarkable varieties of *Taraxacum officinale*, found on the sandy beach near Arbroath, and a curious variety of *Aspidium Filix-femina* from Braemar, having the frond branched at the extremity. The specimens were afterwards presented to the Society.

BOTANICAL SOCIETY OF LONDON.

August 2nd, 1844.—John Reynolds, Esq., Treasurer, in the chair. Mr. John Tatham, jun. and Mr. G. S. Gibson, presented specimens of a new British plant, *Spergula stricta*, *Sw.* (*Arenaria uliginosa*, *Schl.* and *DeCand.*; *Alsinantha stricta*, *Fenzl* and *Reich.*), discovered by them in June last (in company with Messrs. Jas. Backhouse, Jas. Backhouse, jun. and Silvanus Thompson), near the top of Widdy-bank Fell, Durham, about ten miles west of Middleton in Teesdale, and five from the High Force, (Phytol. 1066). Mrs. M. Stovin presented specimens of *Anemone ranunculoides*, found in a wood near Worksop, Nottinghamshire. Specimens from the same locality were presented in June, 1843, (Phytol. 655). Mrs. S. observes, "The more I see and hear of this plant in its Nottingham situation, the more am I convinced of its being wild."

Read, the concluding portion of Mr. Lees's elaborate paper "On the British fruticose species of *Rubus*;" and several specimens and drawings were exhibited in illustration of the views contained in the Essay.—*G. E. D.*

Errata in our last Number.

Page 1063, line 19, for 'two callosities at the base,' read 'less callosity at the base.'

Page 1064, line 12, for 'number of flowers on the Hieracia,' read 'number of flowers in the Hieracia.'

THE PHYTOLOGIST.

No. XLI.

OCTOBER, MDCCCXLIV.

PRICE 1s.

ART. CCXXXVII. — *Notes of a Botanical Ramble in Yorkshire &c. in the Summer of 1844.* Communicated by JAMES BACKHOUSE, JUN.

(Continued from p. 1069).

ON the 4th of 7th Month we finally quitted our quarters at the High Force, and sending our luggage round by the turnpike road, we crossed the moors separating Teesdale from the valley of the Lune. Crossing the foot-bridge below the fall, we took a southerly direction. Near a farm house just above the bridge, we gathered a few specimens of *Peucedanum Ostruthium*. For several miles we walked over high moor-land, presenting little variety: we noticed *Sedum villosum*, *Caltha palustris*, *β. minor*, and *Potamogeton plantagineus*. In the bed of a stream near the head of Lunedale, we found *Galium pusillum*, which we have not yet noticed in Teesdale. On reaching the road from Middleton to Brough, we followed it for several miles, till we came to the head of Swindale, a precipitous glen beautifully wooded on both sides. Having heard that *Asarum europæum* had been found in this neighbourhood, several years ago, we were very desirous of meeting with it, but our time was so limited, and the woods were so extensive, that we soon saw there was little probability of our finding it. We made our way along the bottom, over the rough rocky bed of a mountain torrent, and were repaid for our toil by discovering another locality for *Equisetum umbrosum*, the more interesting as it was in another county (Westmoreland). We also noticed *Hieracium murorum* and *Lawsoni*, and in the lower part of the glen we gathered *Equisetum hyemale* and *Epilobium angustifolium*, both of which were very abundant. Regaining the high road we passed through the little town of Brough, which is situated near the foot of a ragged limestone scar, and took the road for Kirkby Stephen, where we stopped that night.

The following morning we took the Hawes road, and entered the deep glen of Mallerstang, which is bounded on each side by lofty hills attaining to 2330 feet in height. Soon after leaving Kirkby Stephen, we found *Stachys ambigua* in small quantity. From the length of the journey before us, we had not time to examine the craggy sides of the

hills round Mallerstang, but we have little doubt that a botanist who could devote a few days to this district would be well repaid. At the upper end of the valley, the river (here forming the boundary between Yorkshire and Westmoreland) flows through a narrow limestone gorge occasionally not more than three or four feet wide, yet in some places nearly a hundred feet in depth. This gorge, from its depth and darkness, has acquired the name of Hell-gill. Turning towards the west, we ascended the southern ridge of Wild-boar Fell. It was covered in most places with ling, and we saw only *Vaccinium Oxycoccus* in addition to the plants previously noticed as occurring on hills of a similar character. The view from the summit was fine, embracing the greater part of Howgill Fells, the valley of the Lune, and Morecambe Bay in the distance. Descending the side of Swarthfell, we followed a mountain path for some time, and after passing over the foot of Bowfell, we came into the main road, about three miles from Sedbergh.

The following morning we set off to visit Cautley Spout, a waterfall on Howgill Fells about six miles from Sedbergh. On the wooded banks of the river we gathered *Stellaria nemorum* and *Circæa alpina*, β . *intermedia*. In the hedges we noticed *Rosa inodora* and *Mentha rubra*. Leaving the main road, we took a path which led to the foot of Cautley Spout, and commenced ascending the rocks by its side. This fall is composed of a series of beautiful cascades, which pour over the dark slate rocks from a considerable elevation. Howgill Fells are a cluster of round-topped slate mountains, covered in some parts with debris and short grass. Among the loose stones we noticed patches of *Allosorus crispus*, of greater size and luxuriance than any we had met with previously. On the rocks by the side of the fall we found *Alchemilla alpina* growing in great abundance; and higher up the mountain we were struck with the great profusion of *Lycopodium Selago* and *alpinum*, especially of the former. Here our party agreed to separate; two of them descended the eastern side, and on their way to Sedbergh gathered *Cenanthe crocata*, which was plentiful in a moist meadow. The others ascended to the summit, and were amply repaid by the magnificent prospect. In one direction, the southern part of Westmoreland, and the north of Lancashire lay like a map beneath, with the Cumberland mountains and Morecambe Bay in the back ground; while, in the extreme distance, the Isle of Man stretched like a line in the Irish sea. The lofty hills of the north-west of Yorkshire, with the beautiful vale of the Eden, terminated the view in another direction; and the grandeur of the whole was much increased by the heavy clouds which hung about the tops

of the adjacent mountains. On the descent of the Fells near Sedbergh, *Anchusa sempervirens* was growing abundantly.

The following evening we visited the ruins of Firbank chapel, a place of much interest to our party; and thence proceeded to Kirkby Lonsdale, where we arrived late. The next morning we carefully examined the rocks in the neighbourhood of the bridge for *Salix tenuifolia*, which we soon discovered; we also noticed *Saponaria officinalis* and *Catabrosa aquatica*. Passing along the road towards Casterton, we gathered *Geum intermedium*; and in a lane beyond, we found *Quercus sessiliflora*. On the mossy rocks overhanging Whelprig brook, we gathered *Hymenophyllum Wilsoni*, sparingly. We then crossed the moors in a southerly direction for some miles; but little was noticed till we reached the Ingleton road at Leck, where we found *Meconopsis Cambrica*. Shortly afterwards we had a fine view of Ingleborough, though its top was enveloped in mist. Nothing worthy of particular notice was seen, till we arrived at the Bridge Inn, near Ingleton, with the exception of a solitary plant of *Ceterach officinarum*. After an hour's refreshment we again set out to explore Helks wood, which was formerly known as one of the localities for *Cypripedium Calceolus*; it seems to have been exterminated here, as in most of its other localities. *Epipactis ensifolia* has also been almost exterminated in this wood. We think it well to remark here, that in almost every instance, our British Orchideæ are damaged, if not destroyed, by gathering the stem when in flower, with the *whole* of the leaves on, even though the root be left perfectly uninjured.

Helks-wood extends for upwards of a mile along the steep and often precipitous sides of Thornton-beck. Here we gathered *Rosa Domiana*, *Convallaria majalis*, *Polypodium calcareum*, and a *Salix* closely resembling *S. tenuifolia*. Near the end of the wood is a pretty waterfall called Thornton Force. Returning through Ingleton, we noticed *Senecio Saracenicus* and *Mentha citrata*; the former occupied a considerable space near the centre of the village.

The next day we started early for Weathercote-cave, between four and five miles distant. *Saxifraga aizoides* adorned the edges of many of the rills by the road-side, with its bright golden flowers. A rapid descent over masses of rock brings you to the bottom of this remarkable opening, which has rugged precipitous sides. From a dark fissure near the top, a body of water pours down and instantly disappears among the tumbled stones at the bottom, producing a very curious and striking effect. Near the entrance of this cave we noticed *Stellaria nemorum*, *Allium carinatum*, *Meconopsis Cambrica* and *Saxifraga*

Geum ; the last appears to have been originally planted there, but is now completely naturalized. After taking some refreshment at an inn in the vicinity, we commenced the ascent of Ingleborough. We crossed several extensive "limestone pavements," in the deep crevices of which we found *Actæa spicata*, *Lastræa rigida*, and some of the commoner ferns : on the grassy slope we noticed *Aira cristata*. The ascent of the mountain was steep but not difficult, and we were soon able to enjoy the fine bracing air and the extensive prospect from the summit. On the limestone rocks near the top we gathered *Saxifraga oppositifolia*, and below, on the millstone-grit, we saw *Sedum Rhodiola* in abundance, and after some search discovered *Poa alpina* in considerable quantity, though frequently growing in places scarcely accessible. H. C. Watson, in his 'Botanist's Guide,' remarks that he fears there is some error in the statement of this plant having been found on Ingleborough ; but it will no longer be a matter of doubt, and we were gratified in being able thus to confirm the correctness of this locality. Here we also found a *Poa*, somewhat resembling the Teesdale *Poa Parnellii*, and which we at first took to be that species, but more minute investigation leads us to believe that it is *P. nemoralis*, var. *glauca*.

Rapidly descending the easy slope of the mountain on the east side, we passed a deep circular chasm of curious character, called "Gaping Gill Hole." A mountain stream pours into this chasm, falling to an unknown depth. A stone thrown in, after rebounding from side to side for a considerable space of time, sounds at last as though it was hurled into a spacious subterranean cavern. The stream again emerges at a place about a mile distant, and probably several hundred feet below the level of the entrance. On reaching the village of Clapham, we found a chaise waiting to convey us to Settle, where we soon arrived, and were kindly entertained for some days at the residence of our friend and fellow-traveller, John Tatham, jun. The day following was very much one of rest, as regards bodily exercise : we however visited the beautifully wooded rock called Castlebar, at the foot of which the town is situated. Here we saw abundance of *Allium carinatum*. Though the evening proved stormy and somewhat wet, we visited Attermire crags, about two miles distant. The fog on the hills made it difficult to see our way, as well as to distinguish plants. Having however a good guide, we soon came to the place where *Lastræa rigida* grows abundantly ; we also noticed *Cardamine impatiens*, *Hieracium rigidum* and *Lawsoni*, and a single plant of *Polystichum Lonchitis*. This fern is very scarce here, only a few plants having been yet discovered among the tumbled limestone rocks. We were fully

occupied till late in the evening with pressing and changing our specimens (which now amounted to a considerable number), preparatory to starting, as we proposed, the next morning, for Malham-cove, Gordale and Arncliffe; the account of which, with the remainder of our tour, we shall reserve for a concluding paper.

(To be continued).

ART. CCXXXVIII.—*Descriptions of New Mosses and Lichens from the Australian Colonies.* Written for the Botanical Society of London, by THOMAS TAYLOR, Esq., M.D.*

THE bundle of Musci and Lichenes, from a large miscellaneous collection of the late Allan Cunningham, and placed at my disposal by the liberality of Mr. Hewett Watson,† contained several duplicates and but few species, and of these a very limited number that were new. I proceed to notice and describe the most interesting. *Hypnum arcuatum* of Hedwig, to be found in very few collections, occurred growing on the bark of trees, at Norfolk Island. From New Zealand was received *Hypnum flexile* of Hooker, which has not been sufficiently distinguished from *Leskea flexilis* of Hedwig. From the same place was sent *Leskea concinna*, *Hooker*, a variety, however, much smaller than that figured either in the ‘Musci Exotici’ or in Schwægrichen’s Supplement; the capsules, too, were not erect, but drooping from the bending of the upper part of the seta. From Norfolk Island came *Leptostomum erectum* of Brown, in the same specimens varying singularly in the size of the capsules. It was most pleasing to find gathered in New Zealand, *Dicranum vaginatum* of Hooker, described in the ‘Musci Exotici’ as coming from the elevated valleys of the Andes. Our common *Usnea plicata*, *Ach.*, occurred in New Zealand, and *Sticta crocata*, *Ach.*, with fine apothecia, so rare in Europe, was collected in an expedition to the interior of New South Wales, under Major Mitchell. I proceed to describe the new species.

Dicranum Menziesii, Tayl. Caule cæspitoso, erecto, subramoso: foliis undique imbricatis, erecto-patentibus, strictis, ex ovali basi longius tenuiterque setaceis, apice subserrulatis, uninerviis: capsula

* Read before the Society September 6, 1844.

† “The collection (consisting chiefly of vascular plants) was purchased at public auction, after the death of Mr. Cunningham; and it is very probable that some of the specimens had been mingled together, though from different localities.”—*H. C. W.*

lineari-oblonga, apophysata, ex basi erecta apice curvata; operculo inclinato, longius rostrato.

Norfolk Island, *Allan Cunningham*. I had received the same from Mr. Menzies from New Zealand, and named it after him, in 1814.

Tufts wide, pale yellowish-olive above, darker below. Stems $1\frac{1}{2}$ inch high, crowded, parallel, erect, branching principally near the base and then very sparingly. The leaves disposed to be heteromallous, but never circinate; the fruit scarcely exceeds the stems in height; in front of the capsule and at the base there is a projecting struma. The peristome is dark brown, the teeth strongly barred, unequally divided, the larger segment of one tooth always adjacent to the larger segment of the adjoining, which is not unusual in the genus. The calyptra is dimidiate, from a narrow base swelling considerably and then becoming subulate.

The figure of *Dicranum fasciatum* in Hedwig's Species, t. 28, is not unlike the present, differing, however, if we may judge from the description and plate, by the creeping stems, the nerveless leaves, whose summits are wider and shorter, the pedicels for the most part geminate and scarcely exerted, and the want of any struma to the capsule.

Bryum leptothecium, Tayl. Caule laxè cæspitoso, erecto, subramoso: foliis obovatis obliquè cuspidatis, marginatis, dentatis, in rosulam congestis: capsula curvata, lineari-oblonga; operculo conico, acuminato.

Norfolk Island, *Allan Cunningham*. I had received this species from Mr. Menzies in 1814, collected in the same place.

Stems nearly 1 inch high, sending up from near the base of the perichætium a pair of annotinous shoots. The lower part of the stem is nearly naked, at the top and nearly at one point the leaves are clustered, and when moistened recurved and stellate; they are concave, carinate, somewhat oblique, with a sufficiently obvious margination; when dry each leaf is somewhat twisted in itself. The top of the pedicel and capsule both tend to form one curve; the capsule is usually remarkably slender. The inner peristome is split down for only about one fourth of its length, and has two filiform processes between each pair of perforated laciniae.

In *Bryum Billardierii*, *Schwæg.*, the leaves are immarginate and the capsule pendulous and oblong. From the Swan River *Bryum campylothecium*, *Tayl. MS.*, the present is distinct, by the want of long excurrent nerves to the leaves, and the slender capsules, which gradually increase in width towards the top.

Bartramia tenuis, Tayl. Caule caespitoso, erecto, subsimplici, gracili: foliis laxis, erecto-patentibus, ex lata ovata basi lanceolato-subulatis, serrulatis, flexuosis, subsecundis: capsula rotundato-oblonga, curvato-cernua, striata, basi hinc gibba; operculo convexo, umbonato.

Norfolk Island, *Allan Cunningham*. I had received this, collected in 1826 by Richard Cunningham, in New Zealand.

Tufts wide, pale yellowish-green. Stems scarcely 1 inch high, very slender, reddish-brown. Leaves rather distant, with fine acuminate tips, variously bent. The capsule under a lens shows a reddish-brown reticulation on the surface, with cells rather large. Under each dark brown, lanceolate, transversely barred tooth of the outer peristome, lies a pale yellowish tooth of the inner peristome, which is bifid, but with segments unequal in size.

The present ranks near some of the smaller varieties of *Bartramia fontana*, *Swartz*, but then the leaves are longer, narrower, and with the denticulations less prominent.

Hypnum excavatum, Tayl. Caule decumbente, surculis erectis, fastigiatis ramosis: foliis imbricatis, patentibus, concavissimis, rotundatis, breviter apiculatis, integerrimis, basi binerviis: capsula ovata, inclinata; operculo conico, rostellato.

Five Islands, coast of New South Wales, *Allan Cunningham*. I had the same, collected in "Australia, 1823," by Fraser, through the kindness of Dr. R. K. Greville.

Tufts loose, very pale green. Stems either decumbent, with short branches; or the shoots erect, dendroid, with branches fascicled above. Leaves very round, in the dry state pitted in, when moistened, all equally tumid; they are set horizontally; they are shining from their great convexity. The capsules have a slight struma, are unequal in their sides, ovate, bent to one side. The pedicels are smooth: the perichætal leaves differing widely from the cauline in their lanceolato-acuminate shape.

The present may be readily known from its allied congener, *Hypnum Arbuscula*, *Hooker*, by the smaller size of all its parts, its more decumbent habit, and above all, by its more considerable although more slender pedicels.

Usnea scabrida, Tayl. Thallo erecto, scaberrimo, pallide cinereo-flavescenti, fibrillis confertissimis, patenti-curvato-adscendentibus, subramosis: apotheciis demum planiusculis, ciliis confertis radiantibus margine dorsoque tectis; disco stramineo-albido, pulverulento.

Interior of New South Wales, *Allan Cunningham*. I had received the same from Mr. James Drummond, from Swan River.

Thallus from 1 to 2 inches high, fastigiate, very rough; apothecia larger than in any of the congeners. The fibrils of the thallus and the ciliæ of the apothecia are quite analogous, and are buds, which may be observed expanding into new thallus.

The *Usnea florida* of Acharius is known from the present, by its greater size and by the backs of its apothecia being quite smooth.

Parmelia tubularis, Tayl. Thallo orbiculari, stellato, albido, lobis subpinnatifidis, linearibus, planiusculis, subtus inflatis, impresso-corrugatis, aterrimis, glabris: gemmis marginalibus, elongato-granulatis demum linearibus: apotheciis substipitatis, concavis, disco castaneo lævi, margine subintegerrimis.

Interior of New South Wales, *Allan Cunningham*. I had the same from Van Diemen's Land, by favour of Dr. Balfour.

Thallus from 1 to 2 inches in diameter, white, with black edges; the linear lobes are sometimes convex. The apothecia sometimes in old age are half an inch in diameter, and then jagged at the edges and nearly plane at the disk.

This is one of a small tribe of the *Parmeliæ* with inflated lobes. It is easily known from the European *P. diatrype* and *P. physodes* both of Acharius, by the deeper division of the thallus into linear lobes to the very centre, while the lobes themselves are far more distinct.

THOS. TAYLOR.

ART. CCXXXIX. — *List of Plants observed in the dried-up bed of a Wear on Luddenden-brook, in July, 1844.* By S. KING, Esq.

THE following is a list of plants observed during the month of July, 1844, growing upon what is in this neighbourhood called *damstones* (a wear), situate in Luddenden-brook. It is a sort of novelty, many of the plants contained in it being strangers in the neighbourhood; and will at least show the dryness of the season, and the scarcity of water, in permitting the seeds to vegetate in such a place, which contains little more than a hundred yards of surface. It will also show, in some degree, the means whereby plants are frequently dispersed abroad to places foreign to them, as there is not the least doubt that many of them have escaped from the sweepings of the corn-mill which stands upon the stream a few hundred yards above, whither they had

been conveyed among the grain. Those marked thus * were not previously known to grow in this district. The list comprehends the species that grew on the fence-wall adjoining, though none but what a person standing in the water-course might reach. I have no doubt that the number of species would have greatly increased, had not a change taken place in the weather and brought on a flood, which quite obliterated my prolific bit of botanizing ground.

<i>Anemone nemorosa</i>	<i>Scabiosa succisa</i>	<i>Polygonum lapathifolium</i>
<i>Ranunculus acris</i>	<i>Tussilago Farfara</i>	<i>Persicaria</i>
repens	<i>Solidago Virgaurea</i>	aviculare
* <i>Papaver Rhœas</i>	* <i>Anthemis arvensis</i> , a single plant	<i>Convolvulus</i>
<i>Cardamine hirsuta</i>	* <i>Pyrethrum inodorum</i>	<i>Mercurialis perennis</i>
* <i>Erysimum cheiranthoides</i> , plentiful.	* <i>Parthenium</i>	<i>Ulmus montana</i>
<i>Brassica Napus</i>	<i>Gnaphalium uliginosum</i>	<i>Alnus glutinosa</i>
<i>Sinapis arvensis</i>	<i>Senecio vulgaris</i>	<i>Juncus effusus</i>
* <i>nigra</i>	* <i>Centaurea Cyanus</i> , a single plant	conglomeratus
<i>Lepidium campestre</i>	<i>Lapsana communis</i>	bufonius
<i>Viola canina</i>	<i>Lactuca muralis</i>	<i>Luzula sylvatica</i>
<i>Silene inflata</i>	<i>Leontodon Taraxacum</i>	<i>Carex remota</i>
* <i>anglica</i> , a single plant	<i>Sonchus oleraceus</i>	<i>Anthoxanthum odoratum</i>
* <i>Lychnis vespertina</i>	<i>Hieracium paludosum</i>	<i>Alopecurus pratensis</i>
<i>Sagina procumbens</i>	sabaudum	geniculatus
<i>Spergula arvensis</i>	<i>Achillæa Millefolium</i>	* <i>agrestis</i> , plentiful
<i>Stellaria nemorum</i>	<i>Campanula rotundifolia</i>	<i>Agrostis vulgaris</i>
media	<i>Calluna vulgaris</i>	<i>Aira cæspitosa</i>
<i>uliginosa</i>	<i>Fraxinus excelsior</i>	<i>Holcus lanatus</i>
<i>Cerastium viscosum</i>	* <i>Convolvulus arvensis</i> , a single plant	mollis
<i>Geranium robertianum</i>	<i>Digitalis purpurea</i>	<i>Poa trivialis</i>
<i>Lotus major</i>	<i>Veronica Chamædrys</i>	annua
<i>Vicia sepium</i>	* <i>Acinos vulgaris</i> , a single plant	<i>Dactylis glomerata</i>
* <i>Ervum tetraspermum</i> , plentiful	<i>Galeopsis Tetrahit</i>	<i>Festuca ovina</i>
* <i>hirsutum</i> , ditto	<i>Galeobdolon luteum</i>	duriuscula
<i>Orobis tuberosus</i>	<i>Stachys sylvatica</i>	gigantea
<i>Spiræa Ulmaria</i>	<i>Primula vulgaris</i>	<i>Bromus asper</i>
<i>Alchemilla arvensis</i>	<i>Plantago major</i>	* <i>commutatus</i>
<i>Rubus fruticosus</i>	lanceolata	mollis
<i>Rosa canina</i>	* <i>Chenopodium album</i>	<i>Brachypodium sylvaticum</i>
<i>Cratægus Oxyacantha</i>	<i>Atriplex patula</i>	<i>Triticum repens</i>
<i>Pyrus aucuparia</i>	angustifolia	<i>Lolium perenne</i>
<i>Epilobium montanum</i>	<i>Rumex obtusifolius</i>	multiflorum, in tolerable quantity
<i>Chrysosplenium oppositif.</i>	crispus	temulentum, ditto
<i>Angelica sylvestris</i>	acetosa	<i>Equisetum arvense</i>
<i>Heracleum Sphondylium</i>		<i>Lastrea Filix-mas</i>
<i>Anthriscus sylvestris</i>		dilatata
<i>Galium Aparine</i>		<i>Athyrium Filix-femina</i>

Besides the above, there were also the cultivated wheat, oat, bean and potato. Some of the strangers occur in several other places down the brook, for half a mile together, along with **Lithospermum arvense*, **Festuca bromoides*, *Chrysanthemum segetum*, *Agrostemma Githago*, &c. &c.

Lane House, Luddenden,
near Halifax, Sep. 13, 1844.

SAML. KING.

ART. CCXL. — *Notes on some Queries about the 'London Catalogue of British Plants.'* Communicated by G. E. DENNES, Esq., Hon. Sec. Bot. Soc. London.

IN 'The Phytologist' for the current month (Phytol. 1077), a letter appears from the pen of Mr. Grindon, in which many queries are proposed to me, touching the reasons why certain names are used in the London Catalogue, for species which are designated by other names in the Edinburgh Catalogue, — why certain plants are entered as species and others as varieties, — why some are marked indigenous and others introduced? In reply to the letter, I can only say that it is manifestly impossible to answer such questions in detail, without writing enough to fill whole Nos. of 'The Phytologist.' The many pages written about the names and distinctions of *Oenanthe pimpinelloides*, *Carex paradoxa*, *Primula elatior*, *Hieracium sylvaticum*, and their respectively allied species or varieties, afford satisfactory proofs that *reasons* for names and distinctions are rather too lengthy affairs to be entered upon by scores at once.

It has already been stated (Phytol. 1015) that, almost without exception, the names employed in the London Catalogue are adopted from writers of authority; and, in most instances, they are names which have been very generally in use among botanical writers. Those who require reasons for such names, ought to seek them in the published works of the authors from whom they are taken. Those who object to the names so sanctioned, ought to show reasons against them, instead of idly calling for reasons why other parties have not rejected them.

Both Mr. Sidebotham and Mr. Grindon seem to have written under a strange fancy, that the compilers of the London Catalogue were in some way bound to have adopted exactly the same names as were employed by the compilers of the Edinburgh Catalogue. But if the names of this latter Catalogue had been implicitly adopted, other objectors would just as reasonably have asked, why a mere list of names

was followed, in preference to the best descriptive works on British Botany, such as those of Smith, Hooker, or Babington? Not only do the Floras of Smith and Hooker (the highest authorities who have written Floras of Britain) differ from the Edinburgh Catalogue in many names, — but even, in several instances, the names of the Edinburgh Catalogue are again changed and made different in Mr. Babington's 'Manual of British Botany.' When we thus find the *same* author using one set of names in 1841 (Edinb. Cat.), and other names in 1843 (Manual), there can be no great ground for surprize or censure in the circumstance of two *different* Societies being still less uniform in their nomenclature.

Mutatis mutandis, similar observations may be extended to the distinctions between species and varieties, between native and naturalized plants. In very many instances they can be only the opinions of individuals, drawn from imperfect evidence. It is mere mis-use of terms to represent Mr. Sidebotham as endeavouring to "elicit the principle or plan" which was followed in distinguishing native and naturalized plants. There could be no "principle" — that is, general rule: each case must be decided by itself, on the best attainable evidence. One species (say, for example, *Impatiens fulva*) is excluded because known to have been introduced from a distant country; another (*Corydalis lutea*) because its localities are all near houses, or in spots to which the plant is likely to have been carried by the hand of man; another (*Linum usitatissimum*) as being a species long in ordinary cultivation, and not permanent in its localities. Thus, there is no common test applicable — no general rule — no "principle" to be followed. Indeed, it was one of Mr. Sidebotham's own errors to assume (not ask for) a principle, when he stated the number of local Floras as the test between native and naturalized species.

It is to be regretted that writers who seek controversy, are so prone to assume and assert things without the warranty of fact in support. It was wrong in Mr. Sidebotham to make the incorrect statement just adverted to. It is equally wrong in Mr. Grindon to connect the words "extensive changes in nomenclature" with the name of Mr. Sidebotham. Those words occurred in the editorial note (Phytol. 974), but not in Mr. Sidebotham's letter; and they were repeated by myself only in a paragraph which expressly related to the "editorial wishes for uniformity of nomenclature," (Phytol. 1015). By connecting these words with Mr. Sidebotham's name, Mr. Grindon is enabled to give a point blank contradiction to a charge — never made!

Thus far I have replied to such portions of Mr. Grindon's letter as

can be supposed to possess any general bearing or interest. I do this in my capacity of Secretary to the Botanical Society; though I cannot go so far as to allow that any office-bearer of the Society should feel called on to answer queries like this: — “if *Carex irrigua* is a variety, why not also *rariflora*?”

I have now only to add further, that any competent botanist, engaged in writing on the plants of Britain, will find no difficulty in obtaining such information as can be afforded, about any species or variety included in the London Catalogue,—provided his inquiries be addressed to me through the post-office. There seems no good reason for such questions being addressed to the readers of ‘The Phytologist’ generally: it looks too like mere display or notoriety-seeking.

G. E. DENNES.

ART. CCXLI. — *Notice of Presl's ‘Hymenophylloideæ.’*

(Continued from p. 1059).

The characters given to the Hymenophylloideæ are these.

“Sorus in dentibus aut laciniis frondis apicalis immersus vel his consumptis sublateralis exsertus. Indusium e duabus laminis frondis divisis et alteratis constructum; hæ in varia altitudine marginibus connatæ indusium ad medium usque ad basim bifidum efformant. Receptaculum indusio longius vel æquilongum vel brevius, aut filiforme in parte superiore capsuliferum inferne nudum, aut apice globoso-incrassatum ibidem capsuliferum inferneque nudum, aut cylindricum aut obovato- vel lineari-clavatum undique capsuliferum.”—p. 26.

It has already been pointed out (Phytol. 1047), that the main distinction between the Trichomanoideæ and Hymenophylloideæ, is founded on the structure of the involucre; this part, in the latter tribe, being for the most part composed of two distinct valves, which are separated nearly to the base. A perusal of the characters above cited will show that the receptacle affords little or no assistance, since it is occasionally longer and occasionally shorter than the involucre, and that its form is as variable as its length. Indeed the author seems rather to have adopted this dichotomous division in compliment to his numerous predecessors, who, following Sir J. E. Smith, have treated the groups as genera, than to be impressed with any idea of its value or importance. Passages clearly evincing his views on this subject, are of frequent occurrence; for instance, in describing *Leptocionium*, he observes, “It is a genus intermediate between the Trichomanoideæ and Hymenophylloideæ, possessing the receptacle of the former and

the involucre of the latter." We can scarcely avoid feeling regret that an author entertaining such views should hesitate to carry them out, and should bow to mere authority. We consider it impossible for any one, whatever his skill, to define for the satisfaction of others the genera or tribes known as *Trichomanes* and *Hymenophyllum*; and we hold it needful either to adhere, with Linnæus, to the genus *Trichomanes*, or to adopt the generic subdivisions to their fullest extent. For if we divide the *Hymenophyllaceæ* into sections of any kind, more than two such sections will be required; the *Didymoglossæ*, for instance, will occupy a rank at least equal to the *Hymenophylloideæ*. A modern writer on Ferns has an apposite passage on this subject; and it seems not a little remarkable, that a work, so exactly supplying the desideratum there pointed out, should be so soon afterwards in the hands of botanists.*

Genus, *LEPTOCIONIUM*, Presl.

"Venæ pinnatæ, simplices, prominulæ, libere desinentes. Sorus terminalis, sessilis. Indusium usque fere ad basim bipartitum suborbiculatum, laciniis planis appressis margine æqualiter serrato-ciliatis. Receptaculum cylindricum, obtusum, undique capsuliferum, junius indusio æquilongum, adultum duplo longius nudum cicatriculis oblongis spiralibus notatum. Capsulæ lenticulares, sessiles.

"Rhizoma repens, filiforme, tenue, hinc inde paleis piliformibus patentibus adspersum, radicibus flexuosis pilis (radiculis) horizontalibus vestitis. Frondes sparsæ. Stipes semi-uni-pollicaris, teres, flexuosus, fusco-ater, aut glaber aut hinc inde paleis piliformibus adspersus. Frondis limbus semi-sesquipollicaris, lanceolatus, acumina-tus, basi acutus, margine pilis bipartitis seu dicranoideis crassiusculis rigidis acutissi-

* *Hymenophyllum* "was separated by Smith as a genus in the fifth vol. of the *Turin Transactions*, and the name has been adopted by nearly all subsequent botanists, a strong proof of the weight of Smith's authority, for even now, when generic subdivision has extended to so great a length, we have no new genera founded on such imaginary differences as those which separate *Hymenophyllum* from *Trichomanes*. In my endeavours to draw a line between these genera, I have been totally unsuccessful: if we regard the exerted receptacle of the one, or the bivalved involucre of the other, the only conclusion at which we can arrive is this—that those species with the longest receptacles at present stand in *Trichomanes*, those with the most distinctly bivalved involucre in *Hymenophyllum*. These, however, are mere questions of degree, and are quite insufficient to guide the botanist who — without a prior knowledge of a plant — seeks, by means of books, to ascertain its generic and specific names. It must not, however, be understood that I object to the subdivision of the Linnean genus *Trichomanes*; so far from this, I trust the time is not far distant when some competent botanist shall rearrange the entire group, pointing out characters that admit of no dispute, and leading us on to a far more accurate knowledge of these beautiful plants, than we can hope to glean from any works yet before the public." — *Newman's British Ferns*, p. 323.

mis ciliatis, profunde pinnatifidis, laciniis alternis oblongo-lanceolatis obtusis incindentatis, dentibus obtusis apice serratis, serraturis remotis acutissimis subciliatis. Parenchyma e cellulis hexagonis regularibus constructum, tenerum, transparens, in una pagina pilis bipartitis supra descriptis adpersum. Rachis prominula, flexuosa, fusca. Venæ pinnatim exorientes, prominulæ, fuscæ, simplices, apice libero obtuso desinientes rachideque in una pagina pilis bipartitis supra descriptis longioribus tamen et subinde ad ortum venarum tripartitis vestitæ, in altera glabræ. Sorus in dente infimo superiore laciniarum terminalis et illum absorbens vel obliterans, sessilis, parvus. Indusium fronde paululum tenerius, e cellulis illa multo minoribus constructum, suborbiculatum, usque fere ad basim bipartitum, laciniis planis adpressis a medio usque ad apicem sinuato-æqualiter serratis, serraturis acutissimis in ciliam abeuntibus. Receptaculum cylindricum, obtusum, rigidum, rectum, junius indusio æquilongum undique capsuliferum, adultum indusio duplo longius denudatum et cicatriculis ovali-oblongis spirallyter ambientibus (a capsulis delapsis) instructum, ima basi parumper incrassatum. Capsulæ lenticulares, sessiles. Sporæ tetraëdrice, verruculoso-punctulatæ."—p. 27.

1. *L. dicranotrichum*, Presl.

This truly beautiful and remarkable species was brought from Chili by Mr. Cuming, and its description is comprised in that of the genus. A second species, *Hymenophyllum fucoides* of Swartz, a native of Jamaica is doubtfully referred to the same genus.

Genus, MYRMECOSTYLUM, Presl.

"Venæ prominulæ, pinnatim ramosæ, venulis simplicibus liberis. Sorus terminalis, sessilis. Indusium ovale, utrinque convexum, profunde bifidum, laciniis conniventibus apice serrulato-ciliatis aut integris. Receptaculum indusio dimidio longius, cylindricum, rigidulum, a medio ad apicem pulvinis capsularum crebre verrucosum ibique capsuliferum. Capsulæ turbinatæ, sessiles. Rhizoma repens, teres, paleis piliformibus patentissimis vestitum, radicibus flexuosis radiculis piliformibus copiosis obsitis. Frons hygroskopica, stipitata, oblonga, utrinque acuta, glaberrima, bipinnata, pinnis oblongo-lanceolatis subpetiolulatis, pinnulis pinnatifidis, laciniis linearibus in typicâ et in chilensi specie sinuato-serrato-ciliatis undulatisque, in specie antillana integerrimis vel apice emarginatis. Stipes bi-tripollicaris, in *M. tortuoso* alatus, ala serrato-ciliata crispata versus basim decrescente, in *M. clavato* nudus teres filiformis. Raches fuscæ, in *M. tortuoso* alatæ, ala sinuato-serrato-ciliata undulato-crispata, in *M. clavato* teretes nudæ. Costæ prominulæ, fuscæ, flexuosæ. Venæ prominulæ, fuscæ, pinnatim ramosæ, venulis simplicibus apice libero desinentibus. Parenchyma transparens, e cellulis hexagonoideis constructum. Sori in laciniis frondis terminales, sessiles, satis magni. Indusium lineam longum, ovale, utrinque convexum, usque supra basim bifidum, laciniis conniventibus, in *M. tortuoso* apice serrulato — longe ciliatis, in *M. clavato* integris emarginatis margine planis aut undulatis repandisve. Receptaculum cylindricum, obtusum, rigidulum, rectum aut incurvum, junius indusio brevius aut æquilongum basi nudum et versus apicem capsuliferum, in *M. tortuoso* adultum indusio dimidio longius rarissime illo fere duplo longius et apicem versus pulvinis verruciformibus capsularum spirallyter dispositis scabris crebrisque instructum; in *M. clavato* conforme, sed pulvinis his minoribus. Capsulæ lenticulari-turbinatæ, sessiles."—p. 28.

1. *M. tortuosum*. Trich. tortuosum, *Banks, in Herb. Jacq.* Hymen. tortuosum, *Hook. et Grev.*

This species, on which the genus is founded, was collected by Sir Joseph Banks in New Zealand, and a specimen, labelled *Trichomanes tortuosum*, was communicated by that illustrious naturalist to M. Jacquin, and is now in the herbarium of the Imperial Museum at Vienna.

2. *M. P. dichotomum*. Hymen. dichotomum, *Cav.*

3. *M. clavatum*. Hymen. clavatum, *Sw.*

Genus, *PTYCHOPHYLLUM*, Presl.

"Costa teres. Venæ pinnatæ, alternæ, distantes, ramosæ, venulisque apice libero desinentes. Sorus in lacinia frondis terminalis, compressus, sessilis. Indusium ad duas tertias partes bifidum, laciniis ovatis obtusis, altera integra, altera bifida. Receptaculum lineari-cylindricum basi incrassatum nudum, apicem versus pulvinis verrucæformibus spiraliter dispositis provisum. Capsulæ lenticulares, verrucis receptaculi suboblique affixæ. Rhizoma repens, filiforme, ramosum, radicibusque sparsis paleaceo-pilosum. Frons stipitata, hygroscopica, tenera, transparens, pinnulis secundariis pinnatifidis integrisque, laciniis inæqualiter acutiuscule serrulatis longitudinaliter plicatis, cæterum glaberrimis, rachibus margine foliaceo in dentes acuminatos diviso provisus. Stipes uni- tri-pollicaris, teres, bifarie paleaceus vel potius margine frondis utriusque in dentes acuminatos paleæformibus dissoluto instructus. Costæ tenues, prominulæ, stipiteque rachibusque atro-fuscæ. Venæ venulæque teres, steriles apice libero desinentes. Parenchyma e cellulis hexagonoideis constructum. Sori in superiori frondis parte obvenientes, in laciniis terminales, sessiles, compresso-plani, mediocres. Indusium usque ad duas tertias partes longitudinis bifidum, laciniis ovatis obtusis conniventibus æqualibus altera usque ad duas tertias partes longitudinis bifida, laciniis æqualibus sinu acutiusculo divisus, altera integra. Receptaculum indusio æquilongum, rectiusculum, filiforme, teres, basi incrassatum inferneque cicatricibus linearibus longitudinaliter spiralibus, a medio usque ad apicem pulvinis verrucæformibus crebris patentissimis spiraliter ordinatis apice truncatis suborbiculatis et coloratis instructum. Capsulæ in verrucis seu potius pulvinis sessiles, oblique affixæ, lenticulares."—p. 29.

1. *P. plicatum*. Hymen. plicatum, *Kaulf.* Hymen. magellanicum, *Willd. herb.*

This species was brought from Chili by Chamisso and Cuming. Presl observes that although it possesses the general habit of the Hymenophyllaceæ, it is totally different in the structure of the fruit. He considers that by means of the genera *Leptocionium*, *Myrmecostylum* and *Ptychophyllum*, a complete and continuous series is formed of the *Trichomanoideæ* and *Hymenophylloideæ*.

Genus, *HYMENOPHYLLUM*.

"Costa teres, prominula. Venæ alternæ, distantes, ut plurimum ramosæ, sæpius utrinque pinnatæ, in pinnis dimidiatis in latere inferiori deficientes, steriles venulisque apice libero obtuso desinentes. Sorus in lacinia terminalis, aut suborbiculatus aut sæpiissime ovalis, utrinque convexus, sessilis aut subpedicellatus. Indusium bilobum, bifidum aut bipartitum, lobis laciniisve demum patentibus. Capsulæ lenticulares, ses-

siles, receptaculo clavato obtuso undique affixæ. Rhizoma repens, tenuissimum, filiforme, ramosum, radicibus alternis radiculisque pilis paleæformibus copiosissimis vestitum. Frondes stipitatæ, hygrometricæ, teneræ vel tenerrimæ, sparsæ, transparentes, pinnatim divisæ, rarius pilis a basi furcatis vestitæ, sæpius sinuato-serrulatæ, serraturis subinde pilos simplices gerentibus, sæpius glaberrimæ, paginis conformibus. Stipes variæ longitudinis, teres, subinde marginato-alatus. Raches teretes, utrinque prominulæ, sæpe margine foliaceo alatæ. Costæ teretes, tenues, prominulæ. Venæ pinnatim exorientes, alternæ, ramosæ, non prominulæ, venulisque apice libero obtuso aut acutiusculo desinentes, in quibusdam speciebus ob pinnas dimidiatas i. e. latere pinnarum inferiore deficiente solummodo in latere pinnarum superiore obvenientes. Parenchyma e cellulis hexagonoideis constitutum, tenerum vel tenerrimum. Sorus in lacinia frondis terminalis, sæpissimæ laciniam ipsam efficiens, sessilis aut subpedicellatus, solitarius (in qualibet lacinia), mediocris, rarius parvus, in *H.* minimo solummodo in lacinia terminali obveniens et inde in fronde terminalis. Indusium e cellulis hexagonoideis constitutum, fronde tenerius, aut sub-orbiculatum usque ad medium bilobum (in *Cycloglosso*), aut ovale ad duas tertias vel tres quartas partes bifidum (in *Euhymenophyllo* et *Craspedophyllo*), aut usque ad basim bipartitum (in *Sphærodio*), lobis planiusculis conniventibus (in *Cycloglosso*), aut laciniiis convexis conniventibus (in *Euhymenophyllo*), aut partitionibus valde convexis conchæformibus (sic dictis inflatis) demum patentissimis (in *Sphærodio*). Receptaculum undique capsulis obsitum, capsulis delapsis cicatricibus linearibus spiraliter ambientibus instructum, in *Cycloglossis* et *Euhymenophyllis* linear-clavatum indusio æquilongum, in *Sphærodio* oblongo-clavatum demum indusio longius vel sublongius. Capsulæ lenticulares, sessiles, supra planæ et simpliciter cellulossæ, in *Sphærodio* superne excentrice stellato-radiatæ. Sporæ tetraëdricæ, punctis minutis verruculatæ.—p. 29.

This genus is divided into four sections, as under.

* *SPHÆRODIUM.*

1. *H. Wilsoni*, Hook. (*H. tunbridgense*, Schk. Fil. t. 135, d).
2. *H. Meyeri*, Presl. "H. glaberrimum, fronde oblonga obtusa bipinnata, pinnis subpetiolulatis dimidiatis superne profundissime pinnatifidis, laciniiis linearibus obtusis sinuato-acuteque serrulatis, soris sessilibus subglobosis, indusio integerrimo, receptaculo incluso, stipite rachique tereti nuda, petiolulo superne alato inferne nudo tereti. *H. tunbridgense*, b. Drège, Pl. Cap. Exs.
"Habitat in Capite Bonæ Spei, ubi legit clar. Drège."—p. 50.
3. *H. antarcticum*, Presl. "H. glaberrimum, fronde oblonga obtusa bipinnata, pinnis subsessilibus oblongo-lanceolatis, pinnulis oblongo-lanceolatis obtusis sinuato-acuteque serrulatis decurrentibus, soris pedicellatis obovato-subglobosis, indusio integerrimo aut obsolete denticulato receptaculum æquante, stipite rachibusque alatis. *H. tunbridgense*, Sieb. Syn. Fil. n. 134. *Flora Mixta*, n. 254.
"Habitat in Nova Hollandia ad Port Jackson, ubi legit Sieber."—p. 50.
4. *H. Menziesii*, Presl. "H. glaberrimum, fronde lanceolata bipinnata, pinnis petiolulatis dimidiatis, pinnulis linearibus acutis mucronato-sinuato-serrulatis, soris pedicellatis obovato-subglobosis, receptaculo indusium integerrimum æquante, rachibus superne alatis, inferne stipiteque teretibus nudis. *H. tunbridgense*, Jacq. Herb. in Herb. Mus. Bot. Imp. Vien.
"Habitat in Staatenland, ubi legit Menzies."—p. 51.

** EUHYMENOPHYLLUM.

5. *H. valvatum*, *Hook. et Grev.*

6. *H. blepharodes*, *Presl.* “*H. fronde oblongo-lanceolata angustato-acuminata pinnata, pinnis oppositis alternisque petiolulatis lanceolatis obtusis profunde pinnatifidis, laciniis linearibus obtusis emarginatis mucronato-serrulatis, soris sessilibus ovatis obtusis, indusii laciniis apice ciliato-serratis demum patentissimis receptaculo longioribus, rachi superne alata, inferne stipiteque tereti costisque pilis simplicibus furcatisque aspersa.*

“*Habitat in insula Martinica, unde attulit Kohaut.*”—p. 51.

7. *H. minimum*, *Less. et Rich.*

8. *H. tunbridgense*, *Sw.*

9. *H. asperulum*, *Kunze.*

10. *H. cupressiforme*, *Labill.*

11. *H. Drègeanum*, *Presl.* “*H. glaberrimum, fronde lanceolata angustato-acuminata bipinnata, pinnis petiolulatis, pinnulis lanceolatis obtusis profunde pinnatifidis, laciniis inferioribus cuneatis bilobis, superioribus integris lobisque linearibus obtusis emarginatis argute serrulatis, rachibus petiolulisque alatis, primaria basi stipiteque filiformi nuda, soris pedicellatis, indusio obovato receptaculum superante apice inæqualiter denticulato. H. tunbridgense, a. Drège, Pl. Cap. Exs.*

“*Habitat ad Promontorium Bonæ Spei, ubi legit clar. Drège.*”—p. 52.

12. *H. peruvianum*, *Hook. et Grev.*

13. *H. seselifolium*, *Presl.* “*H. glaberrimum, fronde oblongo-lanceolata acuta tripinnata, pinnis petiolulatis alternis distantibus lanceolatis acutis, pinnulis primariis lanceolatis acutis, secundariis cuneato-lanceolatis tri-bifidis, laciniis emarginatis bilobisve alisque rachidum stipitisque ciliato-serrulatis, soris sessilibus, indusii laciniis ovato-lanceolatis obtusis integerrimis receptaculo longioribus.*

“*Habitat in Chile, ubi collegit clar. Cuming.*”—p. 52.

14. *H. multifidum*, *Sw.* *Trichomanes multifidum*, *Forst.*

15. *H. unilaterale*, *Bory.*

16. *H. serra*, *Presl.* “*H. glaberrimum, fronde lanceolata acuta bipinnata, pinnis petiolulatis dimidiatis latere inferiore acuminato-serrulatis, pinnulis linearibus emarginatis rachibusque petiolulisque acuminato-serrulatis, infimis pinnarum inferiorum bifidis, soris sessilibus, indusio lanceolato obtuso integerrimo usque ad basim bifido receptaculum superante, stipite filiformi rachisque basi nudo.*

“*Habitat in Chile, ubi collegit clar. Cuming.*”—p. 53.

17. *H. pectinatum*, *Cav.*

18. *H. secundum*, *Hook. et Grev.*

19. *H. asplenioides*, *Sw.*

20. *H. fumaroides*, *Bory.*

21. *H. Thunbergii*, *Eckl. Pl. Cap. Un. It. n. 92.* *H. tunbridgense*, *Kunze, Acot. Afr. p. 74, partim.*

22. *H. flabellatum*, *Labill.*

23. *H. nitens*, *Brown.*

24. *H. fraternum*, *Presl.* “*H. glaberrimum, fronde oblongo-lanceolata acuta tripinnata, pinnis petiolulatis ovatis obtusis, pinnulis primariis cuneato-lanceolatis obtusis, secundariis cuneatis bifidis, laciniis linearibus obtusis integerrimis, rachibus petiolulis stipitisque apice alatis, soris sessilibus, indusii laciniis ovatis obtusis inæqualiter obtuseque denticulatis receptaculum crassum superantibus.*

"Habitat in Jamaica; inventor ignotus."—p. 54.

25. *H. Poeppigianum*, *Presl*. "*H. glaberrimum*, fronde lineari-lanceolata angustato-acuminata tripinnata, pinnis petiolulatis oblongis obtusis, pinnulis primariis ovato-lanceolatis obtusis, secundariis tri-bifidis integrisque laciniisque late linearibus obtusis emarginatis integerrimis, rachibus petiolulis stipitisque apice alatis, soris sessilibus, indusii usque ad basim bifidi laciniis ovato-subrotundis integerrimis receptaculum superantibus. *H. clavatum*, *Poeppig, Fil. Exs. Kunze, Fil. Poepp. in Linnæa, IX. p. 109.*

"Habitat in Peruvia ad Pampayaco, ubi collegit clar. Poeppig."—p. 54.

26. *H. Jalappense*, *Schlecht*.

27. *H. Grevilleanum*. *H. polyanthos*, *Hook. et Grev.*

28. *H. polyanthos*, *Sw.* *H. millefolium*, *Schlecht. Mathews, Pl. Pers. Exs. n. 1790.*

29. *H. emarginatum*, *Sw.*

30. *H. javanicum*, *Spr.* *H. crispum*, *Nees et Blume.*

31. *H. dædalum*, *Blume.*

32. *H. paniculiflorum*, *Presl*. "*H. glaberrimum*, fronde ovata obtusa, tripinnata, pinnis petiolulatis ovatis obtusis, pinnulis primariis lanceolatis obtusis, secundariis linearibus indivisis obsolete emarginatis integerrimis, stipite basi tereti apice rachibusque alato, soris in apice frondis paniculatis, indusii usque fere ad basim bifidi laciniis orbiculatis receptaculum superantibus. *Cuming, Pl. Philip. Exs. n. 214.*

"Habitat in insulis Philippinis, verosimiliter in insula Luzon, ubi legit clar. H. Cuming."—p. 55.

*** CYCLOGLOSSUM.

33. *H. cæspitosum*, *Gaudich. in Frey.*

34. *H. Cumingii*, *Presl*. "*H. glaberrimum*, fronde lineari pinnata, pinnis cuneiformibus obtusis pinnatifidis, superioribus dimidiatis, laciniis lato-linearibus obtusis emarginatis, stipite filiformi nudo, rachi alata, soris immersis, indusii ad medium bifidi laciniis orbiculatis integerrimis receptaculo æquilongis.

"Habitat in Chile, ubi legit clar. H. Cuming."—p. 56.

35. *H. semibivalve*, *Hook. et Grev.*

36. *H. decurrens*, *Sw.*

a. *Jacquinianum*, fronde lineari-lanceolata, *Jacq. Coll. 2, t. 2, f. 1, 2.*

β. *Sieberianum*, fronde ovata, *Trich. clavatum*, *Sieb. Syn. Fil. n. 141, partim.*

37. *H. Kohautianum*, *Presl*. "*H. glaberrimum*, fronde lineari-lanceolata acuta bipinnata basi angustata, pinnis petiolulatis alternis lanceolatis obtusis, pinnulis cuneato-lanceolatis obtusis pinnatifidis, laciniis linearibus emarginatis alisque rachidum integerrimis, rachibus petiolulisque alatis, stipite filiformi nudo, soris semiimmersis, indusio usque ad medium bifido, laciniis obovato-orbiculatis integerrimis receptaculo æquilongis. *Trichomanes clavatum*, *Sieb. Fl. Mart. n. 250. Syn. Fil. n. 141, partim.*

"Habitat in Insula Martinica, ubi legit Kohaut."—p. 56.

38. *H. Schomburghii*. *Hymenophyllum*, *Schomb. Pl. Guj. Exs. n. 509.*

**** CRASPEDPHYLLUM.

39. *H. marginatum*, *Hook. et Grev.*

(To be continued).

ART. CCXLII. — *Additional Notes on Suffolk Botany.*

By W. L. NOTCUTT, Esq.

Having on a former occasion communicated some particulars of an excursion I made in Suffolk last year (Phytol. 823), and having, this summer, revisited that part of the country, perhaps a few additional observations may not be altogether unacceptable. My visit, however, was paid at a period which, though one of the most pleasant in all the year, is not the most fertile for the botanist; namely, the latter part of May. I again observed most of the plants noticed in my last communication, though many of them were not in flower. In addition to these, I saw in the meadows bordering the river Gipping, a great abundance of *Orchis latifolia* and *Saxifraga granulata*, the former being especially luxuriant; while in the river itself was *Potamogeton lucens*, and at its sides and in the adjoining ditches, plenty of *Cicuta virosa*. In a pond in the meadows between the Gipping and the Bramford road, was a large patch of *Acorus Calamus*, just coming into flower. *Cenanthe fistulosa* grows in the neighbouring ditches, and *Menyanthes trifoliata* in the boggy parts of the meadow.

Turritis glabra I found in two other localities besides the one mentioned in my former paper. On the Belstead road I found it, though sparingly, from Stoke-hills to the place where the Belsted-brook crosses the road: at this latter spot *Galium cruciatum* abounds, and *Malva moschata* grows in small quantity. In the fields beyond, *Sedum Telephium* adorns the hedge-bank, and in a hedge a little further on, I found a tree of *Quercus Cerris*, most likely planted. I met with *Turritis glabra* again in a cornfield on the way to Downham-reach woods: it was just at the top of the hill above Greenwich-farm, at the bottom of which, on the river side, is Hog-island, a locality for *Statice rariflora*. This is a remarkably pleasant walk, and by no means devoid of botanical interest. In the neighbouring cornfields we meet with *Papaver Argemone*, and at the end of them emerge into Gainsborough's lane, so named after the celebrated Suffolk painter, Gainsborough. Some of the views in this lane afford the most beautiful combination of river and wood scenery imaginable. At its termination are Downham-reach woods, which deserve, and I doubt not would richly repay, a close and careful investigation. Here was *Orchis mascula* in profusion, and just in its prime, and such magnificent specimens I certainly never beheld before. By the side of one of the ditches on the edge of the wood, I found, after a little search, plenty

of *Chtysosplenium oppositifolium*; and by another near it, *Cardamine amara*.

At the back of Brook's hall, near Ipswich, is a hilly broom-field: here I found *Orobanche major*, which has maintained this station for a great number of years; it was, however, in very small quantity this year. I have not seen it elsewhere near Ipswich, though the broom, on which it commonly fixes its roots, is very abundant on Stoke-hill, near Greenwich-farm, Cauldwell-hall, &c. In the meadow behind Brook's hall grows *Epilobium palustre*, and in the pond in its front I used to find a *Ceratophyllum*, I suppose *demersum*; but this year it was not to be seen. Near this spot is a lane which leads by the Suffolk hospital and back of the barracks to the top of Globe-lane and in which I found *Geranium pyrenaicum* and *Smyrniacum Olusatrum* in great abundance. *Gagea lutea*, a very rare plant in this part of England, I believe, may be found in Waller's grove, a copse on the left hand side of the London road, about a mile from Ipswich, on that side of the copse which faces Stoke-hills.

Botany being only a secondary object with me in this trip, I was unable to devote so much time to it as I could have wished, and could only spare one day to a search for plants at Felixtow and its neighbourhood. I found nothing more than I have recorded in my last account, excepting a *Poa*, which was growing in moderate plenty on the sands which form the point of Harwich-harbour by Landguard-fort; it appears to me to be *P. bulbosa*, though it differs in one or two points.

During my stay at Ipswich, I had the opportunity of looking over the herbarium of a friend and relative, Mr. John Notcutt, now deceased. He had resided for a long time in Ipswich; and being an ardent lover of Botany, had formed an intimate acquaintance with the plants of the neighbourhood, of which his collection consisted, for there appeared to be scarcely a specimen from any other place. Thinking a notice of some of the localities might be interesting, I transcribe those of a few specimens which were given me by the gentleman in whose hands the collection now is. With the exception of the two last, they are all in the immediate vicinity of Ipswich.

Pulmonaria angustifolia. Between Whitton and Brainford. I carefully examined this station without being able to detect the plant; but as the distance between the two villages is a mile or a mile and a half, and the plant was probably past flowering, it might easily have been overlooked. I possess the specimen, which was gathered in 1818.

Sambucus Ebulus. In the hedge at the N.E. corner of the second

field N.E. of the gardener's house, between Brook's hall and Whitton, the second inclosure E. of the Norwich road, 1818.

Avena fulva. . . Borders of fields between Ipswich and Whitton. — Fields between Fomereau's grove and the Henley road; 1818.

Hieracium Sabaudum. . . Roadside between Belstead and Bentley. In the hedge on the N. side of the Bucklesham road, between the entrance of the lane leading to Foxhall, and some huts; and in the lane on the E. side: also on the hedge-bank E. of the small plantation by the dane; 1818.

Lathyrus Aphaca. . . On the N. border of a field between Ipswich and Whitton, and adjoining the road on the W. side, with *L. Nissolia*. (There are specimens of the young seedlings with the real leaves: the stipules to the first pair are semi-sagittate; but the next pair of stipules are of the usual form).

Stellaria virginosa. . . S. corner of Lower Bolton, by Diary-lane. — At the top of Spring-head dane, St. Helen's, with *Chrysosplenium oppositifolium*.

Mentha sylvestris. . . On a wet bank in the London road, just past Crane-hall, at the foot of the hill, N.E. side, of the first cornfield S.E. of Brook's hall, adjoining an osier-ground.

Bromus giganteus. . . Back of Fomereau's grove.

Erythraea cheiranthoides. In the meadow N. of Handford bridge, on the W. side of the river, within five or six feet of the wall near the bridge. . . Corn-fields by the side of the Orwell, between Hog island and Downham-reach, in the second field from Hog island.

Urtica pilulifera. . . Thorpe.

Eragrostis latvia. . . Salt-marshes at Walberswick, near Southwold.

Besides these, there were fine specimens of *Artemisia pusilla*, and several other interesting plants, the localities of which I had not time to transcribe. . . On the sheet which contained the specimens of *Statice Limonium*, there were two specimens of the normal form of that plant, and two of *S. rariflora*, which were marked, "*S. Limonium*, var.?" the locality was Hog island, near the cliff, Ipswich. My father has since visited the spot, and finds both *S. Limonium* and *S. rariflora* growing there, the latter is most plentiful. . . I may also add that my father has detected *Reseda alba* in a hedge at Felixtow, this summer, from which locality he has sent me several fine specimens.

W. L. NOTCUTT.
Fareham, Sept. 5, 1844.

ART. CCXLIII.—*Varieties.*

521. *Note on Lastræa Thelypteris.* Having seen a notice of *Lastræa Thelypteris* being found in Yorkshire, in small quantity, I beg leave to state that it is very abundant in two places in this vicinity,—Ascham-bog and Heslington-field.—*Jas. Backhouse, jun. ; York, 3rd of 9th Month, 1844.*

522. *Note on a locality for Anthemis maritima.* On the pebbly part of the ballast-ground near Hartlepool, I lately gathered a single specimen of *Anthemis maritima*. I believe the only recorded *English* locality is “Sea-coast at Sunderland.” *Atriplex rosea* and *prostrata* ? are abundant in the neighbourhood of Hartlepool, and *A. marina* occurs more sparingly.—*Id.*

523. *Note on a Surrey locality for Ceterach officinarum.* I believe that at present there is no habitat recorded for *Ceterach officinarum* in the county of Surrey ; I may therefore perhaps be allowed to point out to your readers “a local habitation” for this fern within the county. On looking over a collection of ferns, made by a young lady in this neighbourhood, I was much gratified by seeing a frond of *Ceterach*, which was stated to have been taken from a wall at Haslemere. Feeling a desire to verify the habitat, I mentioned the circumstance to my friend Mr. Salmon ; and a few days afterwards (April 18, 1844), we together visited the spot—an old wall on the south side of Cow-street—where we found from thirty to forty plants. Of these we contented ourselves with a very few specimens. Mr. Salmon sent a notice of this habitat to Mr. Newman, hoping it might appear in the second edition of the *British Ferns* ; his note, however, arrived too late, the last part of the *British Ferns* being published a very few days subsequently.—*Henry Bull ; Godalming, Surrey, September 13, 1844.*

524. *Notes on the change of Colour in the Flowers of the Hydrangea.* Having paid particular attention to the common *Hydrangea (H. hortensis)* for several years, and during that time having made a variety of experiments with a view of ascertaining the probable cause of the frequent variation of colour so prevalent in that species, I offer the following remarks as the result of my observations. They will, I think, show the fallacy of the statements which have been recorded in various periodicals &c., of changing the large pink heads of blossoms into the fine blue colour, either by growing the plant in a particular soil (some persons say peat or bog soil), or by the addition of chemical agents to the soil : as well as that the blue colour is by no means permanent. When my attention was first drawn to the subject some

years ago, where I was then living, several very large Hydrangeas were growing in the open borders of a flower-garden, the soil being of various kinds. One plant, growing in a border of stiff tenacious clay, produced beautiful heads of a bright *pink* colour, while another by its side had every head of blossoms of a fine *blue*; and in the same border was a plant bearing blossoms of pink and blue intermixed, and of as fine a shade of colour as on the separate plants. The other border was a deep surface-soil of peat or bog-earth. The plants were of the same character in this as in the before-named border, and produced the same results, the blossoms being wholly pink, wholly blue, and mixed as before. I have plants here which are growing in clay; and last summer (1843) they bloomed pink and blue heads distinctly on the same plant. In the autumn of 1842 I took cuttings from plants, the pink and blue separately; in the following spring, when they flowered, every head of blossom was pink; the soil varied from peat to a stiff loam. In the autumn of 1843 I repeated my experiment, taking my cuttings again distinct, and potting some of them in pure loam, others in peat soil, others in equal parts of loam and leaf soil, others again in equal parts of loam and peat. No difference was perceptible this summer in the blossoms of those cuttings taken from plants with pink or blue flowers, with one exception, which was that one of the cuttings from the blue, produced *pale* blue flowers; the soil it was grown in was pure loam. A slight tinge of blue appeared in a few of the flowers on other plants, on cuttings taken from the pink kind as well as the other. Such has been the result of careful experiments, and I feel satisfied, as a practical cultivator, that the difference of colour in these plants is of a thoroughly sportive character, and will always be attended with uncertain results. For I would ask, if the soil causes the change of colour, why should it appear on the same plant, as well as on a plant when growing in soil of a decidedly opposite nature? I should be happy to hear of experiments on these plants made by some other correspondents.—*Jno. R. Henness; Dor-king, September 14, 1844.*

525. *Note on Anagallis cærulea.* I beg likewise to mention having succeeded in raising *Anagallis cærulea* a second time from seeds of *A. arvensis*. The first time was in 1838, when, wishing to test the two plants as to their being distinct species, I had sown seeds of *A. arvensis* in a border, from which was produced one plant of *cærulea*. And again, in the present season, having sown some seed, I have obtained the same result; and I now think with Mr. Grindon (*Phytol.* 180), that *A. cærulea* is nothing more than a variety of *A. arvensis*. *Id.*

526. *Note on the Bulbs of Achimenes pedunculata.* In the autumn of 1843, I observed a singular phenomenon displayed by the small bulbs attached to the stem of *Achimenes pedunculata*; they are formed principally in the axils of the leaves. I had gathered a number of the bulbs into a small pan, and having occasion to move them afterwards, I was surprized at the apparently spontaneous irritability exhibited by the bulbs, which continued for some seconds expanding and collapsing with great rapidity. I enclose a small quantity of the bulbs for your inspection, and should be happy to supply any of your correspondents on application.—*Id.*

[On opening the box containing the bulbs (which resemble mulberries in miniature) when first received from Mr. Henness, we were very much surprized at the lively movement pervading the whole mass into which the bulbs had been compressed in their journey by post. They resembled a host of small beetles suddenly released from confinement in a small space, and bent on making the most of their newly acquired liberty.—*Ed.*]

527. *Note on Equisetum Telmateia.* Having seen a discussion in some former numbers (*Phytol.* 588, 618, 621, 648 and 649), respecting *Equisetum Telmateia*, as to the degree of moisture of the spot it usually grows in, I thought it might interest some to state that I have observed it growing commonly in corn-fields in the neighbourhood of Stock and Galleywood common near here. I was surprized to find the plant in a locality so generally occupied by *E. arvense*; probably the fields required landitching, though I could not perceive that they were particularly wet; they certainly were not low in situation. I have never seen this *Equisetum* growing in the water, but two other stations for it near here are much wetter than the preceding. *Alfred Greenwood; Chelmsford, September, 1844.*

ART. CCXLIV.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF LONDON.

September 6, 1844.—John Reynolds, Esq., Treasurer, in the chair. Mr. T. Ingall presented a specimen of *Teucrium Botrys*, found in August last in a stony field at the back of Box-hill, between Brockham and the upper part of Headley-lane, (*Phytol.* 1086).

Read, — Descriptions of some new Mosses and Lichens from the Australian Colonies; by Thomas Taylor, Esq., M.D., (*Phytol.* 1093).

THE PHYTOLOGIST.

No. XLII.

NOVEMBER, MDCCCXLIV.

PRICE 1s.

ART. CCXLV. — *On the British Species of Sphagnum.*

By W. WILSON, Esq.

THE investigation of this difficult genus is more properly a task for one who has uninterrupted leisure : but since the subject has recently come under my special notice, I am induced to present the result of my enquiries to your readers, reserving the details for the 'Manual of British Bryology,' which it is my intention ere long to publish.

Mr. Valentine has long ago pointed out, in the '*Muscologia Nottinghamiensis*,' a good diagnostic for *S. cymbifolium*, *Dill.* (*S. obtusifolium*, *Hook. & Tayl.*), residing in the cellules which constitute the cortical layer of the ramulus. If these are carefully examined with a good lens, they will be found to have a very curious lining of spiral fibres coating the whole interior surface, except where the circular pores are found. This lining, and the circular pores, are analogous to those of the cellules which compose the leaves.

S. compactum (Bridel), found in Oxton-bog by Mr. Valentine, has the cellules of the ramulus quite destitute of spiral lining. The leaves are different in shape from those of *S. cymbifolium*; *ovate-oblong, the upper portion almost subulate, and the apex always præmorsodentate.* The leaves of *S. cymbifolium* vary in shape from roundish to elliptical, generally boat-shaped, sometimes recurved in the upper half, when they greatly resemble those of *S. squarrosum*, but may always be known by their very concave and entire apices, and by the prominent cells at the back of the leaf, just below the apex. *S. compactum* and *S. cymbifolium* are the only species known to me which have the margin of the leaf minutely denticulate (especially towards the apex): all the other species have the margin entire and cartilaginous, most evidently so in *S. cuspidatum*, *Ehrh.*

S. squarrosum (Pers.), has the leaves recurved and very acute at the apex : it can only be confounded with the squarrose variety of *S. cymbifolium*.

S. contortum (Schultz) is a difficult species, as I judge from the circumstance of its having been described in the '*Bryologia Germanica*,' "foliis ovato-acuminatis *falcato-subsecundis* nitidis, ramulis recurvato-contortis." The name itself seems to be unhappy ; since it

is applicable only to one, and that not a general form of the species. Indeed it is only by means of specimens apparently authentic in Mougeot and Nestler's 'Simples Crypt. Voges, Rhén., No. 807' that I am enabled to identify this moss. If I am right in my conclusions, the more general state of this species is one which does not present any appearance of contorted and recurved ramuli, nor any unilateral or falcate direction of the leaves. It often assumes a large size, with very large leaves, when growing in water, and in this state has been called *S. laxifolium* by Mr. Valentine (though he ultimately regarded it as only a variety of *S. acutifolium*), and has not long ago been reported as a new species gathered in Devonshire by the Rev. C. A. Johas. *S. contortum* is readily known from *S. cymbifolium* and *S. compactum*, by the ovate-acute leaves, which are nevertheless præmorse at the apex. An excellent additional character is found in the *cellules of the main stem being disposed in only one layer*, in which respect it differs from all known species, except *S. subsecundum*. Found in Cheshire and Nottinghamshire.

S. subsecundum (Nees ab Esenb.), has not yet been found in Britain, but I think it right to mention it here, and the more so, because in the collection of Mougeot and Nestler, it has been confounded with *S. contortum*. The leaves of *S. subsecundum* are somewhat unilateral, ovate, acute, *not præmorse at the apex, very concave*, but otherwise not readily distinguishable from *S. contortum*, with which they agree in their very small cellules. It may be that *S. subsecundum* is only a variety of *S. contortum*, and if I mistake not, *S. acutifolium* is equally variable in reference to the apex of the leaf, or otherwise two species are confounded under that name.

S. molluscum (Bridel), is a beautiful little soft species, found about Warrington and in Wales, many years ago, by myself; more recently by Mr. Spruce in Yorkshire, and by Mr. Sidebotham in Oulton-bog. This has small, ovate, concave, acute leaves, scarcely præmorse at the apex, and the cellules large, if compared with *S. subsecundum* and *S. contortum*. It is beautifully characterised by the peculiar shape of the cellules of the ramuli; each of these cells (unlike the cylindrical ones of the other species) is curved at top so as to stand out from the ramulus, and the circular orifice at the extremity is thus rendered very conspicuous.

S. acutifolium (Ehrh.), is known by the ovate-lanceolate acute leaves, which, when dry, have the margins unchanged. The leaves in one variety are very regularly packed in five rows. It is very common.

S. cuspidatum (Ehrlh.) has the cartilaginous margins of the leaves reflexed and wavy when dry; the shape of the leaf is narrower than in *S. acutifolium*; often very long and tapering in the aquatic state named *S. plumosum*. A less common species than the last.

Besides these characters, by which the species may be known, there are others consisting in the different form of the perichætal leaves, whereby *S. squarrosum*, *cymbifolium* and *acutifolium* are very obviously separated from each other: the others I have but partially examined. Differential characters are found also in the texture of the walls of the capsule.

It is hoped that these hints may serve as a satisfactory reply to Mr. Sidebotham's request for information upon the subject, (Phytol. 871). I shall feel obliged by the communication of specimens of any *Sphagnum* which cannot be recognized as belonging to the species here enumerated as British. It is highly probable that additional species will be discovered; especially *S. tenellum*, Pers., now that the subject is rendered accessible to the readers of 'The Phytologist.'

W. WILSON.

Warrington, September 27, 1844.

ART. CXXLVI. — Notice of Presl's '*Hymenophyllaceæ*.'

(Concluded from p. 1106).

Genus, *SPHÆROCIONIUM*, Presl.

"Costæ teres, prominula. Venæ pinnatæ, alternæ, distantes, simplices ramosæque, steriles venulisque conformibus apice liberodesinentes. Sorus in lacinia frondis terminalis, compresso-planus, sessilis. Indusium bifidum, laciniiis ovato-orbiculatis obtusis, appressis, idem patentibus. Receptaculum indusio brevius, inferne cylindricum nudum, apice globoso-incrassatum et capsuliferum. Capsulæ lenticulares, oblique stipitatæ. Rhizoma repens, tenuiter filiforme, ramosum, sæpe præter radices alternas filiformes simplices ramosasque radiculis palæformibus piliformibus copiosissimis instructum. Frondes stipitatæ, hygroscopicæ, teneræ vel tenerrimæ, sparsæ, plus minus in rhizomate distantes, transparentes, pinnatim divisæ, aut pilis apice stellatim ramosis (umbraeuliformibus) præsertim in costis venis margineque ornatæ, aut sinuato-serrulatæ, serraturis subinde pilis simplicibus superatis, aut glaberrimæ, paginis conformibus. Stipes variæ longitudinis, teres. Rachis teretes, utrinque prominulæ, sæpe una cum stipite margine foliaceo alatæ. Costæ teretes, prominulæ. Venæ pinnatim exorientes, alternæ, simplices aut sæpe ramosæ, internæ venulisque apice libero desinentes. Parenchyma e cellulis hexagonoideis constitutum, tenerum. Sorus in dente laciniae frondis terminalis, solitarius, sessilis, compresso-planus vel disco convexiusculus, parvus. Indusium e laminis frondis disjunctis formatum, fronde multo tenerius, e cel-

lulis hexagoneideis constitutum, usque ad tres quartas vel quatuor quintas partes longitudinis bifidum, laciniis ovato-rotundatis aut orbiculatis aut obcordatis primo adpressis deinde patentibus, in compluribus speciebus margine vel p[ro]ne marginem pilis apice stellatim ramosis ciliatis vel hirsutis, in aliis speciebus serratis, in aliis serrato-ciliatis, in aliis integerrimis. Receptaculum indusio aemper brevius, inferae cylindricum et nudum, apice globoso-vel subgloboso-incrassatum spongiosum et ibidem capsuliferum, capsulis delapsis irregulariter cicatrisatum. Capsulae lenticularae, margine undique annulo elastico circumdatae, plus minus stipitatae, stipite e prolongatione excentrica faciei capsulae inferioris constructo, plus minus longo, continuo, nunquam septis transversis vel articulationibus quemadmodum in Filicaceis insignito. Sporae tetraëdrice, verruculis minutis punctatae."—p. 38.

This genus contains, besides seven new species, a great number of those which have usually been placed under *Hymenophyllum*; and the author arranges them under three subdivisions, which he names *Stellata*, *Pilosa* and *Glabra*: he speaks of the great difficulty of accomplishing a subdivision satisfactory to himself, and acknowledges the probability of better diagnostics being hereafter found: the names of the divisions now employed sufficiently show the characters he has selected.

1. *Stellata*.

1. *S. hirsutum*. Hymen. hirsutum, Sw. excluso synonymo Plumier. *H. attenuatum*, *Beyrich, Herb. partim*.

2. *S. sericeum*. Hymen. sericeum, Sw.

3. *S. tomentosum*. Hymen. tomentosum, Kunze, *Fil. Poeppig*.

4. *S. interruptum*. Hymen. interruptum, Kunze.

5. *S. aureum*, Presl. "*S. pilis apice stellatim ramosis tomentosum flavescens, fronde lineari elongata pinnata utrinque obtusa, pinnis contiguis sessilibus lanceolatis acuminatis inciso-dentatis basi superiore truncatis subauriculatis inferiore cuneatis, rachi tomentoso-hirsutissima, stipite tereti glabro, soris immersis, indusio ad medium bifido, laciniis orbiculatis. Hymenophyllum aureum, Beyrich, Herb. H. sericeum, Herb. Bras. Reg. Berol. n. 190.*

"Habitat in Brasiliæ Serra d'Estrella, ubi legit Beyrich, in Brasilia sine loci specialis indicatione collegit Sellow."—p. 57.

6. *S. Plumieri*. Hymen. Plumieri, Hook. et Grev. excl. syn. Plum. *H. hirsutum*, Presl, in *Rel. Hank.*

7. *S. Sieberi*, Presl. "*S. pilis apice stellato-ramosis ciliatum et in stipite costis venisque pubescens, fronde lanceolata utrinque acuta pinnata, pinnis lanceolatis angustato-acuminatis pinnatifidis basi superiore semiadnatis inferiore acutis, laciniis semiovatis obtusis obtuse dentatis, rachi alata, stipite tereti, soris Trichomanes alatum, Sieb. Fl. Mart. Suppl. n. 71.*

"Habitat in Martinica, ubi legit Kohaut."—p. 58.

8. *S. pulchellum*. Hymen. pulchellum, Schlecht. *H. attenuatum*, Beyrich, *Herb.*

9. *S. vestitum*, Presl. "*S. pilis apice stellato-ramosis ciliatum et in stipite rachi costis venisque pubescens, fronde lineari-lanceolata obtusa bipinnata, pinnis sessilibus oblongo-lanceolatis obtusis, pinnulis inferioribus tri-bifidis, superioribus indivisis laciniisque linearibus obtusis, rachibus stipiteque alatis, soris semiimmersis, indusii usque*

ad medium bifidi laciniis orbiculatis adpressis ciliatis. Fillicula digitata, *Phum. Fil.* p. 73, t. 50, f. B. Hymen. hirsutum, *Boyrich, Herb.*

"Habitat ad Rio Janeiro Brasilia, ubi legit beatus Boyrich; in Martinica legit Kobaut."—p. 58.

10. *S. hirtellum*. Hymen. hirtellum, *Sw.*

11. *S. ciliatum*. Hymen. ciliatum, *Sw.* Trich. ciliatum, *Weigold, Pl. Surin. in Reichenb. Herb.*

12. *S. Grevilleantum*. Hymen. ciliatum, *Hook. et Grev. Is. Fil. t. 95.*

13. *S. lineare*. Hymen. lineare, *Sw.* Hym. species, *Herb. Bras. Reg. Berol. n. 190, b.*

14. *S. Boryanum*. Hymen. Boryanum, *Willd.*

15. *S. commutatum*. Hymen. Boryanum, *Raddi, Fil. Bras. t. 79.*

16. *S. elasticum*. Hymen. elasticum, *Willd.*

2. *Pilosa*.

17. *S. diversilobium*, *Presl*. "S. fronde glabra lineari-lanceolata utrinque acuta inferne bi- superne simpliciter pinnata, pinnis adnatis, inferioribus in tres, mediis (unius lateris, frondis duplo majoribus quam alterius) in duas pinnales divisis, superioribus indivisis pinnulisque linearibus emarginatis denticulatis, denticulis ciliiferis, rachibus stipiteque alatis denticulato-ciliatis, pilis simplicibus, soris semimmersis, indusii usque ad medium bifidi laciniis orbiculatis ciliatis.

"Habitat in Antillis? Scheda originalis deperdita, sed si non fallor, a beato Bertero in Hispaniola lectum."—p. 59.

18. *S. Schiedeantum*, *Presl*. "S. fronde ovata angustato-acuta bipinnata, pinnis sessilibus oblongo-lanceolatis obtusis, basi acutis, pinnulis linearibus emarginatis undulatis alaque rachidum denticulatis pilisque simplicibus ciliatis, stipite pilis simplicibus piloso apice alato, soris semimmersis, indusii usque ad medium bifidi laciniis orbiculatis denticulatis ciliatisque. Hymen. ciliatum, *Schlecht. in Schiede et Deppe Pl. Mex. Exs.*

"Habitat in Mexico, ubi legit clar. Schiede."—p. 60.

19. *S. trifidum*. Hymen. trifidum, *Hook. et Grev.*

20. *S. pendulum*. Hymen. pendulum, *Bory.*

21. *S. cristatum*. Hymen. cristatum, *Hook. et Grev.*

22. *S. bivalve*. Hymen. bivalve, *Sw.*

23. *S. scabrum*. Hymen. scabrum, *Less.*

3. *Glabra*.

24. *S. infortunatum*. Hymen. infortunatum, *Bory.*

25. *S. australe*. Hymen. australe, *Willd.*

26. *S. ricciaefolium*. Hymen. ricciaefolium, *Bory.*

27. *S. rupestre*. Hymen. rupestre, *Raddi.*

28. *S. caudiculatum*. Hymen. caudiculatum, *Mart.* H. ciliatum, *Herb. Bras. Reg. Berol. n. 189.*

29. *S. productum*, *Presl*. "S. glaberrimum, fronde oblongo-lanceolata angustato-acuminata bipinnata, pinnis sessilibus lanceolatis, pinnulis cuneato-oblongis, inferioribus quadri-trilobis, mediis bilobis, superioribus indivisis lobisque late linearibus obtusis emarginatis sinu obtuso interstinctis, terminalibus elongatis, rachibus late alatis, stipite

alato basi tereti, soris exsertis, indusii usque fere ad basim bifidi, laciniis orbiculatis repandis receptaculo duplo longioribus.

"Habitat in Chili, ubi legit clar. H. Cuming."—p. 61.

30. *S. dilatatum*. Hymen. dilatatum, Sw.

31. *S. crispatum*. Hymen. crispatum, Hook. et Grev.

32. *S. macrocarpum*. Presl. *S. glaberrimum*, fronde ovata acuta tripinnata, pinnae petiolulatis ovato-lanceolatis, pinnaulis primariis lanceolatis obtusis, secundariis cupatis tri-bifidis, laciniis linearibus obtusis emarginatis, aliisque saepidum, vix flexis, stipite alato basi tereti, soris exsertis, indusii usque fere ad basim bifidi laciniis orbiculatis emarginatis longitudine latioribus receptaculum triplo superantibus. Cuming, Pl. Ess. Philip. n. 130.

"Habitat in insulis Philippinis, verosimiliter in insula Luzon, ubi legit clar. H. Cuming."—p. 61.

33. *S. badium*. Hymen. badium, Hook. et Grev. Cuming, Pl. Ess. Philip. n. 112.

34. *S. gracile*. Hymen. gracile, Bory.

35. *S. densum*. Hymen. densum, Sw.

36. *S. sanguinolentum*. Hymen. sanguinolentum, Sw.

37. *S. undulatum*. Hymen. undulatum, Sw. *H. fumaroides*, Chamisso, Herb. et Ind. Kaulfuss, Kunze. Hymenophylli species, Herb. Bras. Reg. Mus. Berol. n. 188.

38. *S. axillare*. Hymen. axillare, Sw.

39. *S. abietinum*. Hymen. abietinum, Hook. et Grev.

Genus, HYMENOGLOSSUM, Presl.

Costa utrinque teres, prominula, flexuosa. Vene oppositae, suboppositae alternaeque, angulo acuto exorientes, parallelae, utrinque prominulae, simplicissimae, in dentes frondis marginate excurrentes, ante marginem obtuse desinentes. Sori in dentibus frondis apicales. Indusium..... Receptaculum..... Capsulae..... Rhizoma repens, filiforme, glabrum, radicibus sparsis flexuosis simplicibus instructum. Rhizodes sparsae, distantes, glaberrimae, vix aut non hygrometricae, fructiferae quam in reliquis Hymenophylloideis, longe stipitatae, oblongo-lanceolatae, acutae, basi acutiusculae, recepta basi aequaliter vel subaequaliter obtuse dentatae, tenuiter marginatae, transparentes, in utraque pagina conformes, pallide virides aut purpureae, duos usque tres pollices longae, in maxima latitudine (versus basim) decem lineas latae, in stipite pendulae. Stipes usque semipedalis, erectus, aeres, filiformis, obsolete flexuosus, glaberminus, fuscus. Costa media utrinque prominula et teres, flexuosa, fusca. Vene circiter lineam ab invicem distantes, oppositae, suboppositae alternaeque, angulo acutissimo exorientes, parallelae excurrentes, rectae vel leviter arcuatae, simplicissimae, prominulae et inde frondem lineantes, in eodem numero ac dentes frondis obvenientes (pro quolibet dente una), hinc apice obtuse desinentes. Venule nullae. Parenchyma e cellulis hexagonideis constructum. Sori in dentibus frondis terminales, ceterum ignoti. — p. 35.

1. *H. cruentum*. Hymen. cruentum, Cav.

The present Monograph places in a striking point of view the obligations conferred on Botany by the enthusiastic and almost unparalleled labours of our countryman, Mr. Cuming. Our readers cannot but observe how large a proportion of the new species are derived from this source, and it is truly gratifying to find that British industry

has accomplished so much, and that our countryman's labours are so highly valued and so honorably mentioned by the author, who of all living men is the most capable of appreciating them.

The work is beautifully illustrated with copper-plate engravings, a glance at which will be sufficient to convince a botanist of the value of the genera which the author has proposed, and at the same time will show the great importance of the fruit in distinguishing these interesting plants.

ART. CCXLVII. — *Correspondence relative to Carex paradoxa, &c.*

As the following communications relate to subjects which have lately been discussed in our pages, we have thought it better to include them all under one general head.

Healden-bridge, September 9, 1844.

SIR,

I now beg of you to favour me with the insertion in 'The Phytologist,' of the following remarks on Mr. Luxford's note (Phytol. 1081). Mr. Luxford says that he deems it his duty to take up the cudgels, in behalf of two of his correspondents, and in one instance, to expose something which appears to him like a mistake which I have made. I shall not say here that I do not *very often make mistakes*, but I shall say that I have made no mistake about the discovery of *Carex paradoxa* in Ascham bogs. If Mr. Luxford will just refer to Mr. Spruce's note (Phytol. 842), he will find that that gentleman, in April, 1841, only discovered this plant as it had been discovered before, that is, as *Carex teretiuscula*. Mr. Spruce tells us that he at that time referred it, "though doubtfully," to *C. teretiuscula*. This may be correct; — Mr. Spruce might have some doubts as to the specific identity of the plant; — but when he sent it to his friends in 1841, he sent it under the name of *C. teretiuscula*, without expressing such a doubt. In June, 1828, I gathered this plant (*Carex paradoxa*) in Ascham bogs; but at that time having no description of *C. paradoxa*, I was, the same as Mr. Baines and Mr. Spruce, under the necessity of referring it to *C. teretiuscula*. And as Mr. Spruce concludes his note by telling us that *C. teretiuscula* does not grow nearer to York than Terrington Car, which is fifteen miles distant, and Ascham bogs being only three miles distant from York, it leaves no doubt of the plant

which I gathered in Ascham bogs in the year 1828, and the one published in Baines's Flora under the name of *Carex teretiuscula* in 1840, being identical with the one that Mr. Spruce discovered in the year 1841. What *honor* Mr. Spruce or any other person can possibly have in being the discoverer of a new plant, I am totally at a loss to comprehend, knowing as I do that such an occurrence is merely a matter of chance.

And as far as regards Mr. Sidebotham's *mistakes*, I will just tell Mr. Luxford (as it appears he has forgotten), that the subject of these Carices was no private one, and that when Mr. Sidebotham was asked for the plant, it was not for the purpose of *perfecting a series*, but *purely with the intention of coming at the truth of a public dispute*. And as Mr. Sidebotham knew this, he would have done much better if he had acknowledged his inability to comply with Mr. Babington's wish, than to have sent him something that would tend to lead him into error. Such a request as Mr. Babington's ought not to have been attended to in a careless manner; but on the contrary, a little more than ordinary care should have been bestowed. Mr. Luxford may think that the mistake should have been set right by a private letter; but I will now tell him that this was no private affair. When I received the letter in question, as I had been previously called on to show why Mr. Sidebotham's specimens did not agree with the description which I had given of my *Carex pseudo-paradoxa*. And further, Mr. Luxford must recollect that Mr. Sidebotham's mistake was between Mr. Babington and himself, and although I was deeply interested, I had no part in it.

Yours respectfully,

SAML. GIBSON.

To the Editor of 'The Phytologist.'

York, 3rd of 9th Month, 1844.

I have a specimen of *Carex paradoxa* in my herbarium, which was gathered at Ascham bog, by my father, in 1818. The *C. teretiuscula* of Baines's 'Flora of Yorkshire' refers to this specimen; thinking it *most* resembled *C. teretiuscula*, my father named it accordingly. The specimen has since been shown to R. Spruce, who pronounces it to be *C. paradoxa*. I believe *C. teretiuscula* is not found at all in Ascham bogs.

JAS. BACKHOUSE, JUN.

Welburn, Yorkshire, Sept. 17, 1844.

Note on Carex paradoxa.—As a companion to Mr. Luxford's note (Phytol. 1021), allow me to call the attention of your readers to a remark by Mr. Teesdale, in his 'Supplement to the Plantæ Eboracenses,' read before the Linnean Society, Dec. 4, 1798, and published in the 5th vol. of their Transactions. Under *Carex paniculata* is the following:—"Obs. We have in the marshes a variety of this, with a small compact panicle, which never forms itself into large tufts, as the *C. paniculata* does. It probably may be a distinct species." I should conclude at once that the plant here alluded to was *C. paradoxa*, were it not that the tufts formed by that species are precisely like those of *C. paniculata*, so far as I have ever observed. The former, it is true, is the smaller plant, and the stools are consequently smaller, though equally dense; and if Mr. Teesdale's words can be understood to imply that his *Carex* does form tufts, though *scarcely so large* as those of *C. paniculata*, I think no doubt will remain of his alluding to *C. paradoxa*. It is not improbable that *C. paradoxa* may have been gathered many times in Yorkshire for *C. teretiuscula*, and I have lately seen it under this name in the collection of Mr. Backhouse, who gathered it in Ascham-bogs some twenty years ago. As to Mr. Gibson's complimentary mention of me (Phytol. 1042), I look upon it as a sort of "note of thanks" for some fine specimens of *Carex paradoxa* he had from me, and which I have reason to believe were the first he had ever seen of the species, as I have not since heard from him in any shape. I did not think it worth while to notice Mr. G.'s misrepresentation, for to him "it is a matter of little importance" to be correct; and I suppose I need not remind him that something more is necessary to entitle a person to the name of a "discoverer," than merely being the first to gather a plant; he ought also to be able to distinguish it from every other species known to exist in the same country, and (if practicable) to make it known under its true name: otherwise might the "natives" of Teesdale be considered the discoverers of *Gentiana verna*, because they have been, from time immemorial, accustomed to decorate their hats and bonnets with its beautiful blossoms.

RICHARD SPRUCE.

Lane House, Luddenden,
Near Halifax, Sept. 13, 1844.

SIR,

While I have my pen in my fingers, just allow me to contradict a misstatement in Mr. Gibson's paper (*Phytol.* 1039), where he says that I "asked Mr. Sidebotham for my *Carex pseudo-paradoxa*, and he sent him specimens under that name." This is not correct; nor did I ever tell Mr. G. so. Once, when I was in company with Mr. Sidebotham, he gave me a single specimen (the only one I ever possessed) of that plant, which he chanced to have by him. Soon after which, I had the opportunity of seeing Mr. G.'s specimens, when I said to him that they looked different from the one which Mr. S. had given me, little thinking that he would betray me in the way he has done, as I did not consider myself a competent judge, and any one knows the difficulty of judging from a single specimen, especially when that specimen is in an imperfect state. I have asked Mr. G. for a specimen of the plant, but he *never would* give me one.

As Mr. Gibson upbraids Mr. Sidebotham with making mistakes, I would caution him to beware of making them; for I have a specimen of *Carex paniculata* in my herbarium, which he gave me under the name of *C. teretiuscula*, labelled with *his own hand*. This was either a mistake, or something worse. At that time both the above species were strangers to me.

SAMUEL KING.

[Although the above communications scarcely require a comment, yet we cannot refrain from saying in reference to the first part of Mr. Gibson's note, that we hardly comprehend how a botanist, in consulting Baines's *Flora*, could possibly know that *Carex paradoxa* was intended by the *Carex teretiuscula* recorded in that work, seeing that the name of the plant is unaccompanied by any note, or mark of doubt, expressive of its imperfect accordance with the descriptions. We may also embrace this opportunity of stating, that having hitherto printed Mr. Gibson's contributions in so full a manner as they certainly would not have commanded, had not a cry of unfair dealing been raised by some of that gentleman's admirers; and having thus manifested our desire to afford Mr. G. ample opportunity of defending himself from attacks which, we are sorry to say, he has, in most cases, provoked;—we must now consult the wishes of the majority of the readers of 'The Phytologist,' by reducing within reasonable limits, any future contributions with which we may be favoured by Mr. Gibson.—*Ed.*]

ART. CCXLVIII.—*Additional Plants found about Saffron Walden, during the Summer of 1844; with Remarks on some of the Species.* By G. S. GIBSON, Esq.

Papaver somniferum. Ditch-banks, &c., rare; an outcast from gardens.

Hypericum maculatum. Woods and moist hedge-banks in several places. It appears clearly distinct from either *H. perforatum* or *H. quadrangulum*, for which it is probably often overlooked; but I cannot think it more than a slight variety of *H. dubium*, having the broad, obtuse, reflexed sepals mucronated instead of entire, and the petals slightly streaked with purple. Probably it is not an uncommon plant in most parts of England.

Rubus Koehleri. Hedges on the Ashdon-road.

R. villicaulis. How-wood, Littlebury.

This genus is so intricate, and such a remarkable diversity of opinion exists as to the distinction of the species, and also as to which species many of the variable forms are to be referred; that I feel some hesitation in giving names to them: yet those who have paid attention to the subject, must feel satisfied that there are a considerable number of *really* separate species, and I cannot doubt that these two are among the number. They agree with authentic specimens so named by E. Lees, the great authority for this genus, which I have received from the Botanical Society of London. I wish the attention of botanists were more drawn to this tribe of plants, which requires much further examination, but is too often passed by, either as undeserving of notice, or so intricate as to render the investigation of it a hopeless task. But surely it deserves equal attention with other genera; and the only way to clear up the difficulties connected with it, can be by patient observation in various localities.

Rosa systyla. Hedges, rare.

R. inodora and *micrantha*? Not common. Introduced here on the authority of Joshua Clarke.

Galium Vaillantii. This plant, which I believe has not been hitherto noticed in Britain, was discovered by myself last month, in a field adjoining this town; it grew in tolerable abundance, and was intermixed with *G. Aparine*. The crop on one part of the field was barley, on the other, clover, grown from *English* seed. It was found among *both*, and therefore could not have been recently introduced with the seed; independently of which, it is the opinion of the grow-

ers of clover, that the process through which it passes would not permit seed of this size to remain among it uninjured; moreover, in a field sown with the same seed, I was unable to find any trace of this plant: if, therefore, originally introduced, it must have been years ago, and may now be considered completely naturalized.

A doubt exists among several eminent continental as well as English botanists, as to the claim of this plant to rank as a species; and they are inclined to consider it a variety of *G. Aparine*, while many others believe it to be really distinct. From pretty close observation upon it in this locality, I cannot but think that the latter will prove the correct view of the subject. A considerable difference of sentiment doubtless exists, as to the definition and limits of species; but if it be correct to consider clear and constant differences, which do not generally admit of intermediate forms, sufficient to constitute species, surely this must be entitled to rank as such. These are, 1. The minute size of the flower, and its greenish colour; never white, as in *G. Aparine*. 2. The remarkably branched dichotomous character of the inflorescence, which is most striking in an advanced stage of growth. 3. The invariably small size of the fruit, which is not half the size of that of *G. Aparine*, and is usually more shining in appearance. The habit of the plant, too, is somewhat different, being generally less branched, and of a lighter green colour, but they are nearly alike in size. I have not been able to find intermediate forms between the two plants, so that though growing often entwined together, they are at all stages of growth readily distinguishable, even by superficial observers; therefore it appears that these characters are constant, and the fact of the plants being thus intermixed, renders it impossible to account for their variations by difference of soil or situation.

Though hitherto only noticed in one spot, I think it very likely to be found in other localities throughout the kingdom, having probably been overlooked as *Galium Aparine*. If such be the case, its claim to be considered a native plant will be strengthened.

Tragopogon pratensis. Meadow at Walden. I am unable to discover in the descriptions or specimens of this species, any clear distinction between this plant and *T. minor*, except the length of the florets; but this character is a variable one, as I have gathered specimens this year, in the same field, some with the florets equal to, or rather exceeding, the calyx in length, some with the calyx twice the length of the florets, with intermediate varieties. Can this, therefore, be considered sufficient to constitute it a distinct species, although the extreme forms certainly present a very dissimilar appearance?

Crepis biennis (the true plant). Chalky banks near Littlebury, rare.

Hypochaeris maculata. Open hills near Hildersham.

Mentha viridis and *piperita*. Ditch-banks near Old Sampford.

M. gentilis? Road-side near Walden.

Cuscuta Epilinum. Very destructive to the crop of flax in a field near Thaxted.

C. Trifolii has not been noticed here this year on clover, but I found it on a bank in the field where it was first discovered, growing on *Centaurea Scabiosa*, *Achillæa Millefolium*, *Convolvulus arvensis*, and other plants within its reach, indiscriminately. There has been no clover in the field for two years, so that it does not seem to confine its attacks to that plant, or to require its presence.

Symphytum asperrium. Duck-street, between Audley End and Littlebury. It has grown there for several years, but probably may have been originally introduced with rubbish from some garden.

Chenopodium urbicum. Rubbish-heaps, rare.

Atriplex deltoidea. Ditch-banks in the Park, sparingly.

Rumex pratensis. Ditches near the Thaxted road. This plant, if rightly named, and I have the authority of an eminent botanist for believing it to be so, I cannot think other than a variety of *R. obtusifolius*, as the form of the enlarged petals is very variable, even on *the same plant*; and there are gradations from the long, ligulate form of *R. obtusifolius*, to the small, triangular one of *R. pratensis*: the breadth of the leaves is also uncertain.*

Populus canescens. Near Chesterford-common.

Allium ursinum. Nun's wood, Walden.

Carex strigosa. Ditto, rare.

C. lævigata. Burton-wood, near Chesterford.

Phleum Boehmeri. Dry hills among sand, at Hildersham, but now very scarce, the land being mostly enclosed and cultivated. Can any of your correspondents point out any other good localities for this grass in other parts of England, or is it confined to a small district in Cambridgeshire?

* It is curious to notice the differences in the descriptions of *R. obtusifolius*, given by Hooker and Babington. The former says that the whorls are "rather close, somewhat leafy," the latter that they are "distant, leafless;" such a discrepancy is remarkable, but the fact is, that specimens *may* be found agreeing with either of these descriptions. As far as my observation has extended, the whorls are generally more or less leafy, but vary extremely in distance. Surely then such variable characters should not be introduced as distinctive peculiarities of the species, as they must tend to perplex rather than assist the young observer.

Barkhausia setosa has not reappeared, being doubtless, as before suggested, introduced with clover-seed from abroad; it may however be expected as an occasional visitant.

A species of *Phlox*, which I noticed this summer at Darlington and elsewhere, has been found at Sampford; and *Lepidium sativum* is often seen by road-sides &c. It is not unlikely that both these plants may ere long find their way into the list of naturalized species.

It is probable that a few other plants will occasionally be discovered in this neighbourhood, as it is many years before even a limited locality is thoroughly explored, and there will always remain some fields, woods and hedges unexamined, which may produce a rare or local plant, confined to one spot in the district.

G. S. GIBSON.

Saffron Walden, October, 1844.

ART. CCXLIX. — *Notes of a Botanical Ramble in Yorkshire &c. in the Summer of 1844.* Communicated by JAMES BACKHOUSE, JUN.

(Concluded from p. 1093).

On the 11th of 7th Month our party again set out from Settle, and crossed the hills toward Malham. On these we saw *Thlaspi alpestre* in abundance, especially on the rubbish at the mouth of the lead-mines. We gathered fine specimens of *Polemonium cæruleum* in the fissures of some limestone rocks, near Malham-cove, where a valley is suddenly closed in by a huge cliff, from under which a small stream emerges. Here we noticed *Draba incana*, *Geranium sanguineum*, *Pyrus Aria*, and the remains of *Draba muralis*, which, as well as *Hutchinsia petræa*, was now dried up. Leaving this place, we crossed a ridge of hills to Gordale-scar, a deep cavernous ravine in the limestone, where the overhanging cliffs present a striking and fearful aspect. At the further end of this opening we ascended the tumbled rocks of a waterfall, which pours from under a natural arch into the chasm beneath. Near this place we saw *Hieracium Lawsoni*, *Hippocrepis comosa*, *Epipactis ovalis*, *Equisetum variegatum*, *Potentilla alpestris*, *Ribes petræum*, and a remarkable form of *Rhinanthus Crista-galli*, which however passed into the common one. In a boggy piece of ground near Malham Tarn, we gathered *Bartsia alpina*, and on the adjacent crag, *Polypodium calcareum*, *Ceterach officinarum*, and a few specimens of *Hieracium hypochæroides*. A high wind ruffled the waters of the tarn, and brought considerable quantities of *Potamogeton lucens*, *perfoliatus* and *prælongus* to the shore.

On Arncliffe Clowder we found abundance of *Dryas octopetala* ? but owing to the lateness of the season, it was chiefly out of flower. This plant is strikingly different from that found in Teesdale, and may possibly prove a distinct species. We passed the night at a comfortable little inn at Arncliffe, and the next morning bent our steps towards Hesletine Gill, where we gathered *Potentilla alpestris*, *Avena alpina*, *Myrrhis odorata*, *Actæa spicata* and *Saxifraga umbrosa* var. *crenata*, the latter in great abundance. On the rocks near the head of the Gill, we saw *Hieracium Lawsoni*, and a *Poa*, probably *P. nemoralis*, var. *glauca*, and on the slope above, *Crepis succisæfolia*, *Hieracium prenanthoides* and *rigidum* ? We next ascended Pennyghent, from the summit of which we had a fine and extensive view, though much the same as that from Ingleborough. We descended the mountain on its western side, which is steep, and in some places precipitous. On the millstone-grit rocks we noticed *Salix herbacea* and *Sedum Rhodiola* in profusion, and on the limestone, *Saxifraga oppositifolia*. The violence of the wind prevented our exploring this part completely, and we consequently passed on towards the village of Horton, where, by the side of a brook, we found *Mimulus luteus* and *Mentha citrata*. Near this place we visited a remarkable bog, called Helwith-moss, on which we noticed *Habenaria bifolia* and *chlorantha*, growing together, but still retaining their distinctive characters; also *Vaccinium Oxycoccos*, *Carex curta* and *Andromeda polifolia*. In this neighbourhood, *Rumex aquaticus*, *Trollius europæus*, *Polygonum viviparum*, *Potamogeton pusillus* and *Hippuris vulgaris* were plentiful. After a fatiguing walk of sixteen miles, we again reached our comfortable quarters at Settle.

On the following day we visited the celebrated cave near Clapham; it is situated about a mile from the village, and near the extremity of a picturesque valley. This magnificent cavern is about 1000 yards in length, and from its noble stalactites is probably not equalled by any other cave in the British islands. Far removed from the light of day within its deep recesses, we noticed a plant of the Fungus tribe, probably *Rhizomorpha subterranea*, spreading its root-like branches on a dripping mass of petrification. Leaving the cavern, we attempted to cross the moors, in order to visit some localities for rare plants on the way to Settle; but in consequence of dense fog, with rain and wind, we missed our way, and came upon one of the extensive "limestone pavements" with which this neighbourhood abounds, and after wandering for some time, found ourselves two miles further from the point of our destination than the place from which we started.

On the 18th of 7th Month, after parting from our kind friend, J. Tatham, we left Settle by coach, and reached York that evening, having greatly enjoyed our excursion in the "mountain country."

On the 18th, two of our party again proceeded into Teesdale, in order to examine more fully the locality of *Alsine* (or *Spergula*) *stricta*. We noticed *Linaria purpurea* on the cliff below the ruins of Barnard-castle.

We reached Widdy-bank Fell about 6 o'clock that evening, and after a long and careful search succeeded in finding the plant. Being out of flower, it was with difficulty detected, and this difficulty was much increased by its growing with *Arenaria verna*, which was also out of flower. With the exception of one solitary piece, we only found it in the limited locality where it was first discovered, though we searched many other likely places on the mountain very carefully. Some authors have referred this plant to *Spergula*, some to *Alsine*, and others to *Arenaria*; it has however a decidedly three-valved capsule, which necessarily places it in the genus *Alsine*.

We discovered another fine plant of *Woodsia ilvensis* on a part of Falcon Clints, far distant from the old locality; likewise another solitary plant of *Saxifraga umbrosa*, var. *crenata*. On the way we collected some more specimens of *Hieracium Lapeyrousil*, which was just opening its flowers.

ART. CCL.—*Facts about the Nomenclature of Plants in the London and Edinburgh Catalogues.* By HEWETT C. WATSON, Esq.

SOME correspondents of 'The Phytologist' (Phytol. 972, 1077) have been inditing censures, in the disguise of queries, on the nomenclature of the 'London Catalogue of British Plants,' compared with that of Edinburgh. An importance is given to those censures, which they would not in themselves possess, by an editorial note (Id. 974) being attached to one of the letters. And since 'The Phytologist' has thus spread abroad, and given weight to, censures which are not in accordance with facts, I beg leave to say a few words upon the subject; although I cannot, like my friend Mr. Dennes, call myself an office-bearer in the Society.

It is virtually stated by Mr. Sidebotham, though put as a query (Id. 972), that the Edinburgh Catalogue makes the names of British plants correspond with those in use on the continent, by correcting errors in other lists and works. Mr. Sidebotham does not specify any

continental authority ; nor, probably, was he able to do so. But the editorial note more expressly refers to Steudel's 'Nomenclator Botanicus,' as an authority which should form the basis of a new Catalogue of names and synonymes. That work is, indeed, a most valuable and important one ; and it is constantly in requisition with botanists, as a work of reference which is indispensable to every writer on plants, when names and synonymes have to be ascertained.

Under these circumstances, a comparison between the Edinburgh Catalogue and Steudels' work may fairly be instituted, to show how close is the correspondence between the Catalogue and the great continental authority for names. They both bear the date of 1841, but of course the Nomenclator was much longer in printing. Now, I find that as the names of species stand in the Edinburgh Catalogue, nearly two hundred of them are given by Steudel as synonymes only. They are thus not the names which this continental authority deems most properly applied to the plants. If we add, further, some score or more of names in the Edinburgh Catalogue, which have no place at all in the work of Steudel (*Atriplex deltoidea*, *Cerastium atrovirens*, &c.), we may say that *upwards of two hundred names* in the Catalogue differ from those applied to the plants by Steudel. This is a very large proportion, exceeding *one in every eight names*. The Edinburgh Catalogue includes nearly 1600 reputed species.

After this example of alleged correspondence, let us now look at the contrary example of alleged difference. The plan of the London Catalogue, rejecting dubious species and many very dubious natives, necessarily reduces the sum total. The list of indigenous and introduced species, including the sub-species of *Rubus*, amounts to 1464 ; but as nearly thirty of these are additional species, not in the Edinburgh Catalogue, the proper comparison must be made on the other 1435. It is troublesome to compare an arranged with an alphabetical list very minutely ; but on going over the two, I find only about eighty species in the London Catalogue whose names differ from those in the Edinburgh Catalogue. This is a proportion of about *one name in every eighteen*.

There is something amusing, truly, in such a result. The Catalogue which is praised for corresponding with continental authorities, actually differs from the great continental authority for nomenclature, to the extent of *one-eighth* of the whole. But the Catalogue which is blamed for not corresponding with that of Edinburgh, actually differs from it only to the extent of *one-eighteenth* !

I have not leisure to pursue the comparison further, but am dis-

posed to believe, that the eighty names of the London Catalogue, which differ from those of the Edinburgh Catalogue, would be found more frequently in use in continental works, than are the corresponding names or synonymes of the Edinburgh Catalogue: not in each individual instance, probably, but on the average of the whole. Moreover, so many of the plants which appear as species in the Edinburgh Catalogue, are enumerated as varieties only by Steudel, that it seems likely enough the London Catalogue may be nearer to the Nomenclator in this respect, although I cannot say so with certainty. The truth is, that continental authors of influence and reputation differ among themselves fully as much as (and probably more than) our British authors. Particular foreign authors might be selected, with whose works the Edinburgh Catalogue is in closer correspondence; but my own supposition is, that the names of the London Catalogue, on an average, correspond better with those in the greater number of continental publications. Let it be observed, the differences in the two Catalogues are seldom on questions of right or priority; but turn more frequently on the greater or less subdivisions (and consequently re-naming) of old established genera. Thus, the Linnæan genus *Poa* appears under two names in the London Catalogue, but under three in that of Edinburgh. The Linnæan genus *Scirpus* is retained in the London Catalogue, but subdivided into *Scirpus*, *Isolepis* and *Eleocharis* in that of Edinburgh; yet so little natural is this subdivision, that we find *S. multicaulis* and *pauciflorus* — species so like as to be constantly confounded — put into different genera.

HEWETT C. WATSON.

Thames Ditton, October 2, 1844.

[There appears to be some slight misapprehension on the part of both Mr. Dennes and Mr. Watson, with regard to certain portions of Mr. Sidebotham's note, and of the editorial note appended thereto. 1. We do not find that Mr. Sidebotham anywhere praises the Edinburgh Catalogue for "corresponding with continental authorities," he says that it "*was to make our names agree with the continental ones,*" not that it had done so. 2. The tendency of the editorial note is, on the whole, approval of the London Catalogue, mingled however with regret that uniformity of nomenclature has not hitherto been attained, and inviting correspondence on the subject. This, indeed, is expressly stated at the outset of the note; and the omission or alteration of a single word — a mere *lapsus calami* — would take away even the appearance of censure. *Ed.*]

ART. CCLI. — *Note on Yew Trees.* By W. WILSON, Esq.

Yew-tree in Bowden Church-yard, Cheshire.

AN account of a tree within a tree has lately appeared in the newspapers; and it is worthy of remark that there is a curious old yew-tree in Bowden church-yard, Cheshire, which presents an analogous appearance. The rude sketch now sent was taken on the spot. The tree is about 5 feet in diameter in the thinnest part of the trunk, hollow and decayed on the east side. Within the hollow, about 6 feet from the ground, a thick, forked, root-like stem, apparently connected with one of the principal branches, has at some distant period, but subsequent to the decay of the trunk, commenced its downward growth, and is now of considerable thickness. It is covered with its own cortical layers. Behind this there is a smaller separate root, about an inch in diameter, proceeding in a slanting direction from the right to the left.

About eight years ago, when passing the celebrated yew of Fortingal, in Perthshire, I was induced to examine its remains, then surrounded by a walled inclosure; and from what I saw, my impression was that the entire circumference marked by the remains, had not been that of a solitary tree, but of several trees which had grown in a circle. May not this appearance have been produced by the same process, but on a larger scale, as that now going forward in the Bowden yew? It would thus appear that the branches of the tree make an effort to put forth internally, roots of their own, when the trunk ceases to convey the requisite nourishment from the ground.

W. WILSON.

Warrington, July 22, 1844.

ART. CCLII. — *Three Days' Botanizing at Selborne.*

By T. BELL SALTER, M.D., F.L.S.

TOWARDS the latter end of last month, I paid a short visit to the village, which has been rendered so surpassingly interesting by the observations of that true lover of Nature, Gilbert White; whose place and residence are now come into the possession of my much loved and excellent relative, Professor Bell. It was during a short visit to the residence of *White*, and in the company of *Bell*, that the following observations were made, — association and associate to inspire great things. Speaking of association, tempts me to add what I know must be gratifying to every naturalist, which is this; — that the present owner of Selborne Park preserves with the most sacred care all the local reminiscences of his illustrious predecessor — reminiscences, which are neither few in number, nor devoid of interest, but which it would be out of place further to allude to here.

With the habits of many of our birds the name of Selborne has long been, and will long continue to be, associated, from the circumstance of the originality and truthfulness of *White's* observations, and from the very remarkable fact, that notwithstanding the time which has elapsed, better observations have not since been made. The graphic descriptions of this good man have also associated with the name of Selborne an idea — I had almost said a feeling — of all that is picturesque in Nature, and rustic and primitive in the manners of its simple-minded habitants. So numerous are the observations first made in this sequestered place, that one can imagine it to be the favoured resort of the feathered tribes: — and so may it well be; for it is truly

gratifying to find that no amount of early impressions are likely to carry one's fancy beyond the reality of its native charms. For my own part, there was no anticipation which was not surpassed; and what was the more gratifying to myself as a botanist, was to see very clear indications that the district is likely to prove not less rich to the botanist than to the zoologist.

It was too late in the season to expect to do very much in botanizing, but I soon observed sufficient to be aware that not only might a very rich collection be obtained here, but that also very many most interesting observations might be made in this district, as respects geological Botany.* My time was not sufficient to make extended observations, nor am I myself a geologist, but I was so much struck with some of the peculiarities of this situation, that I cannot refrain from mentioning them.

Selborne is situated at the junction of the upper green sand and chalk formations, and the general fact of the fertility of the soil at the junction of any limestone and sandstone series, holds good here to a remarkable degree. The well known beech *Hanger*, which is on the west side of Selborne, is on the chalk, which is also the case with the beautifully wooded *Nore Hill*, two miles to the south of Selborne. The general aspect of the landscape is decidedly hilly,† and nearly all the hills slope gently to the west, and precipitously on the east side, which sides are very generally overgrown with wood, and designated *hangers*. Passing to the east from Selborne, the level is diversified as above mentioned, but its general tendency is that of a declivity, until; at a distance of about three miles, you arrive at a large sandy flat; which is composed of the lower green sand. The intermediate part consists of the chalk marl and upper green sand, comprising, I am informed, some very remarkable modifications of these, which are highly interesting in a geological point of view. In its unbroken state, the soil of this district is stratified rock or free stone, varying in

* In speaking of *geological Botany*, I believe I am guilty of coining a new term; but I have often observed that the relations between the vegetation of different parts of a district, and its Geology, are most interesting, and would furnish a field for observation, not less interesting than the *geographical* distribution of plants, or rather, I should say, form a most interesting subsection of this branch of Natural History. In an agricultural point of view, such observations might be rendered of great benefit, as by them it might be judged, from the Botany of the fallows, what kinds of manure were required.

† Though very *hilly*, I cannot accord with White in applying the word *mountainous* to this district.

its proportions of lime and sand. This is seen in the beautiful *rocky lanes* or *hollow ways*, so graphically described by White, and which yield well in the spring and summer. In the fields we have soils of sand and lime in the most varied proportions; and it is this feature which renders the botanical distribution so striking. One is surprised at the sudden transition, in many cases, from a Botany which is that of the limestoue or chalk, to one which is essentially that of a sand district; and in other instances by the mixture of both.

In addition to the hangers and rocky lanes, I must mention one or two other features or localities. In the first place there is the *Lith*, a beautifully wooded vale, running east from Selborne, through which a very pretty stream takes its meandering course.

Wolmer forest is well described by White. The total desolation of the scene and the sterility of the soil, are still just as he describes them. But I cannot refrain from noticing the strange resemblance of the shore of Wolmer pond, to that of a creek of the sea. There are the same loose white sand without mould, and here and there the barren black mud so usual in marine places: and even the vegetation increases the resemblance;—the turf of innumerable plants of *Littorella lacustris*, so much resembling both *Plantago maritima* and *Armeria maritima*; and the stunted oak and starved willow have the aspect of those which have suffered from the salt sea gales.

Short-heath, which is to the north-east of Selborne contains more depth of soil, and furnishes some good bog ground, abounding with *Droseræ*, *Anagallis tenella*, *Lycopodium inundatum* and *Polygonum minus*.

Such a diversity of soil and situation promises much, and I think the following list, being one of only three short days' botanizing, and these late in the month of September, gives promise of many good things to those who can give more time to this locality, and at a more auspicious season.

- | | |
|--|--|
| <i>Ranunculus sceleratus</i> , <i>hederaceus</i> and <i>aquatilis</i> . Short-heath. | <i>Pyrus Aria</i> . Week-hill hanger, Nore hill. |
| <i>Nasturtium terrestre</i> . Short-heath. | <i>Lathyrus sylvestris</i> . Nr. Week-hill hanger |
| <i>Saponaria officinalis</i> . In a hedge near the Priory. | <i>Drosera longifolia</i> and <i>rotundifolia</i> . Wolmer-forest and Short-heath. |
| <i>Cerastium vulgatum</i> . Temple and Emshot. | <i>Sison Amomum</i> . Rocky lanes, frequent. |
| <i>Radiola Millegrana</i> . Abundant at Wolmer-forest and Short-heath. | <i>Helosciadium inundatum</i> . Wolmer-forest and Short-heath, plentiful. |
| <i>Epilobium angustifolium</i> . Very common in the hedges about Selborne. | <i>Enanthe fistulosa</i> . Short-heath. |
| ——— <i>roseum</i> . Selborne, near Oak-hanger, and abundant on Short-heath. | <i>Callitriche autumnalis</i> . In a ditch between Temple and Wolmer. |
| | <i>Sambucus Ebulus</i> . Hedge in Selborne-park. |

- Bryonia dioica*. Frequent about Selborne.
Jasione montana. In the Lith, at Wolmer and Short-heath.
Conyza squarrosa. Week-hill hanger.
Prenanthes muralis. Rocky lanes, very co.
Hieracium sylvaticum. Wolmer-forest & rocky lanes about Selborne.
 ——— *umbellatum*. Rocky lane near the Grange.
Fedia dentata. Nore hill.
Veronica Anagallis and *scutellata*. Short-heath.
Scutellaria minor. Wolmer-forest.
Lycopus europæus. Near Temple.
Mentha sylvestris. In the Lith.
Polygonum minus. Short-heath.
Littorella lacustris. Wolmer-forest and Short-heath.
Rhynchospora alba. Short-heath.
Juncus squarrosus. Wolmer-forest, and Short-heath.
Scirpus sylvaticus. By the bridge at Oak-hanger, and in a swamp at the foot of Week-hill hanger.
Poa nemoralis. In a bank between Week-hill farm and the Hanger.
Lastrea multiflora. Dry ditch at Wolmer
Polystichum aculeatum. Honey-lane and near Emshot.
 ——— *angulare*. Honey-lane and near Emshot, sparingly.
Athyrium Filix-femina. In a shady dell near Emshot-church.
 ——— *var. molle*. In a dry ditch at Wolmer-forest.
Lycopodium inundatum. Short-heath

I have not mentioned in this list so common a plant as *Calluna vulgaris*, but it worth noticing that the greater part of this plant, which abounds at Wolmer, is of the most hairy form.

We did not at Wolmer see any of the *Vaccinium Oxycoccos*, mentioned by White as growing there, but it must be tolerably abundant in some parts, as we met a poor woman with a handkerchief full, which she had collected for tarts.

The *Epilobium angustifolium* mentioned above must, a little earlier in the season, be a very great ornament, as it grows very tall, and in great profusion. *Epilobium roseum* was growing in a rather unusual kind of locality. I had never before seen it except in cultivated ground, and, with the exception of one garden at Salisbury, never far from London. In the present instances it was growing in loose sand, by the side of running water, in very considerable abundance. The flowers were unusually pale and little expanded, and what was further noticeable, it was always growing with *E. parviflorum*, of intense colour.

The *Sambucus Ebulus* growing in the park, could not have been growing there in White's time, as he mentions the plant in his catalogue, but not as growing so near him. It might possibly have been planted by him.

White speaks of the lanes as abounding in ferns; my impression was decidedly the reverse. It is remarkable that *Polystichum aculeatum* and *P. angulare* were generally growing together, but both in

their most pronounced forms, the former being almost of the mountain or lobatum form.

A large yew-tree growing in the church-yard deserves notice. We measured the trunk, at what appears the point of its greatest circumference, which was about four feet from the ground, and found it to be at that part twenty-four feet and eight inches; but the Rev. ~~Mr~~ Parsons, the present incumbent, informs me that at one part it measures twenty-seven feet.

The maples growing in the park deserve some notice. From a large knotted mass of wood, rise from six to eight stout trunks, averaging a circumference of about three feet each. These all ascend, slightly diverging, and forming as it were a compound trunk. At the height of about fifteen feet they break into one magnificent head, not inferior to a very respectable sycamore. There are in the park many such groups, or rather compound trees.

I have omitted all mention of the Rubi from the above list, not because there were few forms, or that they were devoid of interest, for it was quite otherwise, but because they are still *sub judice*.

T. BELL SALTER.

Ryde, Isle of Wight, October, 1844.

ART. CCLIII. — *Remarks on some Species of Chenopodium.*

By GEO. FITT, Esq.

HAVING lately paid some attention to the undermentioned species, with the view of satisfying myself that they are all really distinct, I send you the result of my observations.

Chenopodium intermedium. Leaves triangular, slightly attenuated at the base, inclining to hastate, deeply and irregularly toothed, *teeth* acute, dull green, not shining, *mealy* beneath, somewhat leathery in texture; leaves on the spikes toothed, seldom entire, those of young plants blunt, hastate, and but slightly toothed. Spikes long, somewhat leafy, clusters distant; seeds flattened, as large as rape-seed, rough; calyx 5-cleft. Stem angular, strong, erect. Smell of the whole plant rank, especially the calyces.

C. rubrum. Leaves nearly rhomboid, seldom triangular, deeply and irregularly toothed, *teeth blunt*, shining, fleshy, upper ones scarcely toothed, those of the spikes generally entire, rhomboidal or

ovate: in some plants the large leaves of the stem are nearly triangular, slightly attenuated at the base, resembling those of *intermedium*, and in others they are almost three-lobed. Stems angular, generally erect, occasionally procumbent and with leaves not fully developed, when the plant somewhat resembles *C. botryodes*. Spikes compound very leafy, and the clusters much crowded. Seeds one fourth the size of those of *C. intermedium*, rather rough and flattened. Calyx in three deep segments, edges membranaceous.

Smell scarcely unpleasant.

C. botryodes. Leaves triangular, inclined to hastate, shortly attenuate at the base, slightly toothed, the *teeth acute*, lower leaves very blunt, almost rounded and *entire*; small upper leaves, and those of the spikes sometimes rhomboid: in luxuriant specimens, a few leaves are sometimes deeply and acutely toothed, hastate and pointed: in their general form they resemble those of *C. Bonus-Henricus*, with the addition of the teeth, but in texture they are like those of *C. rubrum* and *C. intermedium*; in the figure in Smith's 'English Botany,' they are made too pointed and lengthened, the figure is otherwise characteristic: tinged with crimson, especially beneath. Stems weak, procumbent, of a deep crimson colour. Spikes rather leafy, resembling those of *C. intermedium*, the clusters even less crowded. Seeds as small as those of *C. rubrum*, in a loose skin, vertical. Calyx closed over the fruit so as to appear entire, and bursting in three short segments.

When fresh-gathered, the smell is like that of the pods of green peas.

I omitted to examine the flowers when in season. On the end of the spike of this species there is generally a central 5-cleft calyx.

I have always found *C. intermedium* constant to the above characters; and by its very rank smell, larger seeds, and the uniformity of its leaves, it may be readily known from *C. rubrum*.

C. botryodes, in general appearance and habit, is more distinct from *C. rubrum* than the above. It is by no means a variable plant. its lower leaves are always the same in form and texture. During the last two years I have observed the growth of some hundreds of plants; and I have now before me a score of good ones, besides dried specimens; and yet I have not, that I recollect, met with one about the identity of which I have had the least doubt. It often grows side by side with *C. rubrum*, although they do not usually inhabit the same soil, and in this juxtaposition each maintains its distinctiveness. The

fact is, *C. rubrum* is a very variable plant, and some peculiar form of it may be mistaken for *C. botryodes* by those who have not had the opportunity of seeing living specimens of the latter; and thus they have been thought not distinct. It would not be easy to decide the question from preserved specimens, as they lose much of their character in the process of drying.

One fact connected with *C. botryodes* will, I think, be interesting to botanists. It grows in the greatest profusion and beauty (for it is a handsome plant) where mud has been thrown out of ditches during the summer, and where grass has not had time to grow. About five days since, I found a considerable number of specimens in a marsh, where it had not appeared before for several years, as I had visited the spot constantly in my botanical walks. This place is two miles distant from where I usually find the plant, and two rivers intervene. I can only account for its sudden appearance, by supposing that the seeds lie dormant at the bottom of the ditches, preserving their vegetative power, until a favourable opportunity offers for them to grow, when cast out with the mud. The plant does not grow on the same spot on the following year after its appearance in this manner, except in small quantity, as it will not thrive among grass. I went to one station last year, to gather specimens for Dr. Wood, and found to my dismay, that the spot was buried beneath heaps of mud. In three weeks after, an abundant crop of *C. botryodes* was the result. Scarcely a specimen grows there this season, although thousands of seeds must have fallen on the soil, now nearly covered with grass and *Atriplex patula*. In proof that the seeds in these cases were in the mud, wherever the latter was scattered about the marsh, as it was in several places, there grew *C. botryodes* in profusion.

I should feel greatly obliged to any botanist who would furnish me with a specimen of *C. sicifolium* in flower and in fruit, and I should be happy to give him, in return, good specimens of *C. botryodes*. They might be sent by post.

Geo. Fitch.

Nh. Yarmouth, Oct. 15, 1844.

ART. CCLIV. — *Varieties.*

528. *Note on the Spotted Hieracia.* Discordant opinions have been given respecting the correct specific names of our hawkweeds which bear leaves stained with black or purple, (Phytol. 741, 801,

841, 865). Too much stress has been laid on the stained character of the leaves. Smith says of *H. murorum*, that "the leaves are never stained with black." The same author describes the leaves of *H. maculatum* as "dark green above, more or less speckled with black or dark purple." Of *H. sylvaticum* he writes, "Herb hairy, of a pale, unspotted, grass green." The leaves of *H. pulmonarium* he describes as "bright green" and "clouded with faint blotches of purplish brown." No mention is made in 'English Flora,' of stains upon the leaves of *H. Lawsoni*. It would thus seem that Smith referred all the spotted-leaved plants which he had seen, either to his *maculatum* or *pulmonarium*; and succeeding botanists have doubtless been misled by Smith's error. Having had the opportunity of examining many plants with spotted leaves, in the Eastern Highlands, this year, I venture to offer the following conclusions, derived from these and the specimens previously in my hands. 1. *H. murorum*, more frequently than other reputed species, varies with spotted leaves; and in this state it has been usually labelled *maculatum* or *pulmonarium*. It is this which Mr. Gibson denominated *hypocheroides* (Phytol. 741), on account of the plant having been formerly mistaken for *Hypocheris maculata*. 2. *H. Lawsoni*, also varies with stained leaves. I saw numerous examples of this in Aberdeenshire, the present year; and it has appeared in my garden, among the descendants of unstained wild plants, brought from Perthshire, some few years ago. The stains on this species are streaks, rather than spots. 3. I have never seen a wild specimen of *H. sylvaticum* (certainly so) with these marks on the leaves; but a plant in Kew Gardens, which may be correctly assigned to this species, has its leaves much clouded with dark purple. This plant (equally with others, with dark green and unstained leaves, in my own garden) differs from the descriptions of *H. sylvaticum*, by having numerous radical and few stem leaves; but I suppose the difference in the number and colour of the radical leaves to arise from the garden locality. As to the stem-leaves, the wild plants of *H. sylvaticum* have often only one or two, besides those at the very base. 4. Among a number of young plants, brought to my garden from Canlochen Glen, on account of their spotted leaves, some apparently will prove to be *H. nigrescens* and others *H. murorum*. This is an additional circumstance (Phytol. 804) towards showing the identity of *H. pulmonarium* (Smith) and *H. nigrescens* (Willd.) At all events, the plant of Smith appears to me to have small resemblance to *Lawsoni*, with which Mr. Babington unites it under the name of *diaphanum*. 5. There is the variety *pictum* of *H. rigidum* (Bab. Man.) for another

stained-leaved Hieracium, but I possess no specimen of it, nor do I clearly understand what is intended under the name of rigidum. Thus, we have varieties "maculatum" of *H. microtum*, Lawsoni, pulmonarium, sylvaticum, rigidum, and, probably, nigrescens; if this latter is not the same as pulmonarium. In Decandolle's *Prodr.* many there is only a single "maculatum" recognized by name; and that one is placed as a variety under *H. aurorum*. — *Hamett & Watson; Thames Ditton, October 4, 1844.*

520. *Note on the discovery of Leersia oryzoides in Sussex.* — You may, if you please, insert in the next number of *The Phytologist* my notice of the discovery of *Leersia oryzoides* as a British plant; I have found it in three places in the Henfield level, growing along the edges of the marsh-ditches. I first observed it on the 24th of September last. — *W. Borrer; Henfield, October 8, 1844.*

530. *Note on Juncus diffusus?* — A plant which I had supposed might be *Juncus diffusus*, grows plentifully within the sand-hills, on the east side of Hunston, between Lynn and Wells, Norfolk. It forms spreading patches of large size, mixing with *J. maritimus*. I think the same plant grows also near the river, above Lynn, but what I took for it there was much injured by cattle. (*Juncus effusus* is noticed as British, in Babington's Manual, "on the authority of W. L. Sonder, of Hamburgh, who possesses Scottish specimens.") It may be distinguished from *J. glaucus* by having solid pith; that of *J. glaucus* being cellular; it is also a greener plant, and has mucronate fruit. This notice may perhaps lead to further enquiry. — *James Basthouse; York, 14th of 10th Month, 1844.*

531. *Note on Cuscuta europæa, &c.* — I lately noticed *Stafleus parviflora*, growing in company with *S. limonina* and *S. reticulata*, near Wells, in the opening opposite Holkham; and *Cuscuta europæa* on nettles, in the Bulwark-road, Earsh, Huntingdonshire. *C. europæa* is of frequent occurrence in the adjacent parts of Cambridgeshire, where it is called "scald;" it may be presumed, on account of the scalded appearance which it gives to the bean-crops, to which it is often injurious. "Burning the bean-chaff, and keeping the hedges free from nettles, have removed this pest to the farmer from some places where it formerly abounded. — *Id.*

532. *Note on Carex teretiuscula.* — Your correspondent Mr. Linford (*Phytol.* 1021) has appealed to me for further information as to the *Carex* found near Hainaby, and which I conceived at the time might be a small variety of *C. paniculata*. A further examination has

convinced me that it is *C. teretispala*; and for this I have also the authority of Dr. Benth. — *Joseph Woods*; *Leaves*, October 19, 1844.

583. *Note on Athyrium Filix-femina as a Tree-fern.* In a small bog very near Ryde, are some plants of *Athyrium Filix-femina*, which must be of very considerable age, the rhizomata being raised to the height, in several instances, of a foot and a half to two feet, thus constituting the plant, in some degree, a tree-fern. The rhizomata however do not stand free as proper stems, but the old fronds, decayed and overgrown with *Sphagnum*, form slender conical tumuli, filled with fibres from the rhizomata, by which the plant assimilates to itself again the decayed materials of its former fronds. Many of the rhizomata are much branched, the whole length of the branches however being contained in the sphagnum mould. The rhizomata and branches, though contained in this mass of decayed vegetable matter, do not themselves decay, but may be traced throughout, some of the leading ramifications being more than a foot in length. *Carex paniculata* is growing in the same little bog; and the tumuli formed by the fern bear a very strong resemblance to those of this *Carex*, so well known when, under favourable circumstances, it attains a considerable age. — *Th. Ball-Salter*; *Ryde*, October, 1844.

584. *Note on Stipa pennata.* The long feathery awn by which the persistent palea of this grass is surmounted, is well known; but one interesting part of its structure appears to have escaped observation. Below the feathery portion, the awn is spirally twisted, and the seed has a sharp point, which is oblique exactly in the axis of the spire of the awn. By means of this contrivance, when the seed falls to the ground it becomes buried to some little depth. This structure is in accordance with the constitution of the seed; for I find those which are thus imbedded seldom fail to vegetate, while those which become dry are apt to lose their vegetative power. — *John Lawrence*; *St. John's*, near Ryde, October, 1844.

(In the generic description of *Stipa*, Smith says "Cor. of 2 valves, nearly equal in length; the outer elliptic-lanceolate, involute, slightly keeled, with a very long, terminal, twisting awn, jointed, and finally separable, at the base. * * * Seed cylindrical, pointed, loose, closely enveloped in the hardened outer valve of the corolla, which is very sharp, and barbed with bristles, at the base, so as to penetrate and fix itself in the earth." And again:—"Flowers erect, slender, with long awns, bent just above the twisting part; then straight; either feathery or naked." — Eng. Flor. i. 181, Hooker also observes:—"Cor. cartilaginous, involute, terminated with a very long twisted awn, jointed at the base, and finally separating at the joint. * * * A great ornament to our gardens in the summer, and to our rooms in the winter, for if gathered before the seed is ripe, the long feathery awns remain, and a tuft of them is

almost as beautiful as the famed tail of the Bird of Paradise."—*Brit. Flor.* ed. 6. 383. Such of the Composite as have their fruit crowned with a pappus, whether stipitate or sessile, present a somewhat analogous provision for ensuring both the dispersion and the subsequent germination of the seed. The thistles offer a familiar illustration. When the seed, separated from its parent plant, and borne to a distance by its beautiful balloon, has met with a spot suitable for germination, it becomes, as it were, ~~scattered~~ ^{scattered} into the ground; the pappus then separates from the seed by an articulation at the apex of the latter, and buoyantly floats away. If the thistle-down with which the air is filled in autumn, be examined, very few will be found with the seed attached, but the rays of the pappus will be seen to proceed from a central elastic ring. At this ring the pappus was articulated with the seed.—*Ed.*]

535. *Note on Asplenium fontanum.* "Every man has his bubbly Jock," and *Asplenium fontanum* appears to be mine. I might perhaps deny the existence of such a fern, and treat it merely as a name unrepresented by a reality; but I decline availing myself of this plea, and acknowledge that there are three European species of *Asplenium*, successfully cultivated by our nurserymen under this name, and freely distributed to those inclined to purchase. I therefore admit the existence of such a fern, and merely dispute its having been found wild in Britain. My correspondence on this subject would fill several numbers of 'The Phytologist,' but I have no idea of dragging it before the public. Still, Mr. Redhead and Mr. Thompson, by calling *public* attention to supposed discoveries, seem to invite a *public* reply. Of all the recorded British habitats of *Asplenium fontanum*, Mr. Redhead's appears to me decidedly the best and most worthy of reception. (*Phytol.* 1084). In the first place, the specimens are actually in existence; are decidedly referrible to *Asplenium Halleri*, one of the species cultivated under the name of *fontanum*; and finally, they came into my hands directly from the discoverer; who unequivocally declares that at a certain date, and at a certain place, he gathered them with his own hand. This, one would suppose sufficient for the most sceptical; but I will venture to ask Mr. Redhead a few questions, which, if he will kindly and satisfactorily answer, I will instantly apologize for having expressed the slightest doubt on the subject. 1. Will Mr. Redhead inform the readers of 'The Phytologist,' whether he was more than eight years of age when he discovered *Asplenium fontanum* in Wharfedale wood, in the year 1838; and if older than I suppose, will he please to say how much older? 2. Will Mr. Redhead inform the readers of 'The Phytologist,' whether he had any knowledge whatever of Botany at the period of this discovery; that is, whether he believes that in 1838, he would have known a fern from a thistle? 3. Will Mr. Redhead inform the readers of 'The Phytol-

logist, whether He labelled the specimens found by him in 1838, with date, locality, &c., at the time of finding them, and if not, by what means he traces the specimens sent to London to the date and locality mentioned? If Mr. Redhead succeeds in demonstrating to the readers of *The Phytologist*, that in 1838 he had arrived at years of discretion and judgment; that he possessed a tolerable acquaintance with British plants; that He was then in the habit of collecting and labelling plants; that he recognized this fern as a rarity, or exhibited it to any botanist who told him its name and value; then I shall be inclined to enter into the subject more at length. But if it turns out as I suspect, that Mr. Redhead was a mere child, neither possessing nor pretending to possess the slightest knowledge of Botany, neither labelling nor even collecting plants;— why then I think the question may be considered as decided. In reply to Mr. Thompson's communication (*Phytol.* 1081), it may be well to state that Mr. Shepherd's supposed discovery was thoroughly sifted prior to the publication of my *British Ferns*, and this, not only by myself, but by a botanist whose judgment is received with universal respect; and he fully united with me in considering the evidence unsatisfactory. I may add, that during the past week, a dealer in British ferns called at the printing-office, and in the presence of a valued contributor to *The Phytologist* (G. S. Gibson), stated that he knew of *three* British localities for *Asplenium fontanum*. He sells these rarities daily at the eastern entrance of the Bank of England; or, if the metropolitan market appear to be glutted for a season, he tours the provinces, supplying country botanists on very liberal terms. His stock is inexhaustible.
Edward Newman; 12, *Hanover St., Peckham, October 24, 1844.*

535. *Rarer Plants observed in the neighbourhood of Penzance.*

<i>Agrostis setacea.</i> Newlyn cliffs.	<i>Euphorbia Paralias.</i> Hayle sands.
<i>Ammophila arenaria.</i> Hayle sands.	— <i>portlandica.</i> Hayle cliffs.
<i>Antirrhinum Orontium.</i> Bologas.	<i>Gastroidium tendigerum.</i> Conner down.
<i>Brassica oleracea.</i> Penzance cliffs.	<i>Helleborus viridis.</i> Zimmernum oot.
<i>Brya minor.</i> Bologas.	<i>Hyoecyamus niger.</i> Marazion green.
<i>Callitriche pedunculata, B. sessilis.</i> Chyanhall moor.	<i>Illecebrum verticillatum.</i> Chyanhall moor.
<i>Cerastium tetrandrum.</i> Marazion green.	<i>Inula Helenium.</i> Treriefe.
<i>Cicandis filiformis.</i> Chyanhall moor.	<i>Iris fetidissima.</i> Hayle.
<i>Cochlearia danica.</i> Newlyn cliff, and on walls in Penzance.	— <i>isabrota.</i> Olverton and Treveneth, on hedges.
<i>Cynodon Dactylon.</i> Marazion green.	<i>Juncus maritimus.</i> Hayle river.
<i>Daucus maritimus.</i> Land's end.	<i>Lavatera arborea.</i> Mousehole cliffs.
<i>Erica vagans.</i> Conner down.	<i>Lepturus incurvatus.</i> Hayle causeway.
<i>Erythraea ramosissima.</i> Conner down.	<i>Littorella lacustris.</i> Chyanhall moor.
	<i>Mentha viridis.</i> Newlyn cliffs.

- Myriophyllum alterniflorum*. Chyanhall moor.
Narthecium ossifragum. Chyanhall moor.
Nepeta Cataria. Logan rock.
Oxalis stricta. Larrigan, near Penzance.
 — *corniculata*. Bologas, rare.
Pinguicula lusitanica. Chyanhall moor.
Polycarpon tetraphyllum. Newlyn.
Polygonum Rayii. Newlyn green and Marazion green.
Radiola Millegrana. Newlyn cliff.
Ranunculus parviflorus. Mousehole.
Reseda fruticulosa. Marazion green.
Rumex Hydrolapathum. Marazion marsh
 — *sanguineus*. Penzance.
Samolus Valerandi. Mousehole cliff.
Schaenus nigricans. Marazion marsh.
Scilla verna. Penlee point.
Sorophularia Scorodonia. Newlyn cliff.
Sedum Telephium. Logan rock.
Scutellaria minor. Bologas.
Sibthorpia europæa. Newlyn cliff.
Spergula subulata. Chyanhall moor.
Stachys ambigua. Newlyn cliff.
Tamarix anglica. St Michael's mount.
Teesdalia nudicaulis. Bologas.
Teucrium Chamædrys. Ludgvan.
Wm. Curnow; *Pembroke Cottage, Newlyn Cliffs, Penzance, 1844.*
- Trifolium ornithopodioides*. Marazion gr.
Zostera marina. Penzance.
Adiantum Capillus-Veneris. Hayle, in caves and high cliffs.
Hymenophyllum Wilsoni. Carn Brea.
Lastræa recurva. Chyune grove.
Equisetum arvense; a variety with mixed fronds, approaching *E. palustre*. — This singular form I have gathered in several states, some of them having the normal fertile stem attached, proving it to be the true plant.
Pilularia globulifera. Chyanhall moor.
Phascum axillare. Newlyn.
 — *rectum*. Ludgvan, J. Ralfs, Esq.
Gymnostomum pyriforme. Bologas.
Schistostega pennata. Newlyn.
Diphyscium foliosum. Chyanhall.
Bryum Tozeri. Newlyn cliff, in fruit.
Leucodon sciuroides. Miney.
Hookeria latevirens. Mousehole cave, W. Borrer, Esq.
Parmelia Borreri. Treveneth, beautifully in fruit.
Roccella fuciformis. Logan rock.
Psora atro-rufa. Penlee point, J. Ralfs, Esq.

ART. CCLV.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF LONDON.

October 4, 1844. — John Reynolds, Esq., Treasurer, in the chair. Read, a General Description of the Botany, Climate and Physical Geography of the Neighbourhood of Embleton, in Northumberland; drawn up by Robert Embleton, Esq., in illustration of a local herbarium of the district, collected for the Society by the same gentleman. The description and herbarium will remain at the Society's Rooms as a valuable record of the present condition of the district. — *G. E. D.*

CONTENTS.

ALPHABETICAL LIST OF CONTRIBUTORS.

AINLEY, WILLIAM.

Anemone apennina found in Yorkshire, 650

AYRÈS, PH. B., M.D.

Note on a supposed new British *Æcidium*, 553; Note on the Fruit of *Umbelliferae*, 554; List of the Cryptogamic Plants of Oxfordshire, 661, 702; Note on *Vaucheria terrestris*, *Protonema muscicola*, 743; Reply to Mr. Edmonston's Remarks on botanical Classification, 885, 960, 1009

BABINGTON, CHARLES CARDALE, M.A., F.L.S., G.S., B.S.

Tragopogon pratensis, 94; On the authority upon which several Plants have been admitted into the Catalogue of British Plants published by the Botanical Society of Edinburgh, 309; Note on a supposed new British *Cuscuta*, 466; Note on *Scleranthus*, 521; Note on *Polypodium Dryopteris*, 556; On *Statice rariflora*, 594; Note on *Symphytum asperirum*, 806; Note on *Sonchus oleraceus* & *S. asper*, 815; Observations on *Hieracium nigrescens* and *H. hypocheroides*, 866; Note on the Meetings of the Botanical Society of Edinburgh, 969; Bentall's Drying-paper, 1018; Note on *Primula elatior*, 1018; Note on *Anthyllis vulneraria*, 1019; Note on *Cenanthe pimpinelloides*, 1060

BAINBRIDGE, FREDERICK

Note on a new British Lichen, 616

BACKHOUSE, JAMES

Note on *Juncus effusus*? 1140; Note on *Cuscuta Europæa*, 1140

BACKHOUSE, JAMES, JUN.

Account of a Visit to Teesdale in the Summer of 1843, 892; Notes of a Botanical Ramble in Yorkshire &c. in the Summer of 1844, 1065, 1089, 1126; Note on *Lastrea Thelypteris*, 1110; Note on a locality for *Anthemis maritima*, 1110; *Carex paradoxa*, 1120

BALFOUR, J. H., M.D., Regius Prof. Bot. Univ. Glasgow

Note on Botanical Excursions from Glasgow during the past summer, 401; Note on the poisonous effects of *Conia*, 490; Note on some localities in Mr. W. Gardiner's List, 971

BATTERSBY, ROBERT, M.D.

Note on *Iris foetidissima* with double flowers, 1070

BEEVER, M. (Miss)

Hymenophyllum Wilsoni, 90; *Lycopodium Selaginoides*, 90; *L. clavatum*, 90; Note on *Polypodium fragrans*, 872

BELL, JOHN

New locality for *Saxifraga Hirculus*, 741

BENNETT, WILLIAM

Note on *Primulas*, 397

BENTALL, THOMAS

Note on *Myosotis sylvatica*, 649; Note on *Lathyrus Aphaca*, and other plants in the vicinity of Halstead, Essex, 746; Note on *Veronica Buxbaumii*, 872

BEYNON, W. L.

Note on the *Dail llosg y Tân*, 589; Note on *Ranunculus hirsutus*, 716; Note on *Epilobium roseum*, 716

BLADON, JAMES

Stellaria holostea with lacinated petals, 264; Economical use of the Dock, 398; Monstrosities in the Flowers of a *Fuchsia*, 523; Note on the *Dail llosg y Tân*, 582; On the influence of Light in producing the Green Colour of plants, 583; Note on *Hieracium maculatum*, 934; Note on *Ornithopus perpusillus*, 935; Note on *Campanulas*, 935; Note on the *Equiseta*, 936

BLOXAM, REV. A., M.A.

Weymouth locality of *Vicia lœvigata*, 775

BOOTT, FRANCIS, M.D., F.L.S.

Note on the supposed identity of *Carex fulva* with *C. speirostachya*, 924

BORRER, WILLIAM, F.L.S., B.S.

Locality of *Trifolium stellatum*, 167;

- Notes on *Statice rariflora*, 611; Note on *Smilacina bifolia*, 611; Note on a new locality for *Isnardia palustris* and on the Small White Water-lily, 716; Note on the discovery of *Leersia oryzoides* in Sussex, 1140
- BREE, REV. W. T., M.A., F.L.S.
Note on British Lycopodia, 61; New British Narcissus, 61; Note on *Las-træa spinulosa*, 745; Description of *Aspidium recurvata*, 773; Note on *Aspidium spinulosum*, 845
- BREWER, J. A.
Lycopodium Selago detected in Tilgate Forest, Sussex, 93
- BRICHAN, JAMES B.
Potamogeton praelongus, 236; Notes on the genus *Utricularia*, 259; Notes on the British *Pyrolæ*, 296; *Rhinanthus major* and *R. Crista-galli*, 296; Description of *Equisetum hyemale*, *E. Mackenzii* and *E. variegatum*, as found on the banks and in the bed of the river Dee, 369; Note on the Sands of Barry, and on *Equisetum variegatum*, 445; Notes on a solitary Ramble to Loch-na-gar, with remarks on several species of Plants met with in the course of it, on the 14th of July, 1842, 536; Note on the occurrence of *Cuscuta Epilinum* and *Saponaria Vaccaria*, in Morayshire, 553; Journal of a short run into Badenoch, Strathspey, &c. 601
- BROMFIELD, W. ARNOLD, M.D., F.L.S.
Cyperus longus in the Isle of Wight, 131; Note on *Tamarix gallica*, 131; Flora of the Isle of Wight, 132; Curious form of the common Reed, 146; *Staphylea pinnata*, 146; Notes on *Linaria spuria* and *Elatine*, 168; Note on the British species of *Tilia*, 169; On the narrow-leaved *Hypericum perforatum*, 461; Notice of a new British *Calamintha* found in the Isle of Wight, 768; Note on *Isnardia palustris*, 770; *Urtica pilulifera* in the Isle of Wight, 806
- BROWN, ISAAC, F.B.S.
Note on *Lunularia vulgaris* fruiting under glass, 997
- BUCKLEY, N.
List of Plants in the vicinity of Lytham, Lancashire, 165; *Chrysosplenium alternifolium*, 187
- BUCKMAN, JAMES, F.B.S.
Three days on the Cotteswolds, 137; New locality for *Melittis grandiflora*, 741
- BULL, HENRY
Note on the production of shoots of *Cytisus Laburnum* and *C. purpureus* from grafts of *C. Laburnum esc-cineum*, 908; Note on a Surrey locality for *Cetanthus officinarum*, 1110
- CAMERON, DAVID, A.L.S.
Note on the British Orchidaceæ, 62; *Lycopodium clavatum*, 63; *L. Selago*, 63; *Dianthus plumarius* and *D. Caryophyllus*, 63; *Gibbottium Baromez*, 63; *Anagallis arvensis* and *A. cærulea*, 78; *Ulex strictus* on Irish Furze, 76; *Gibbottium Baromez*, 1427; Warwickshire locality for *Equisetum Telmateia* (*Savinia*), 555
- CARPENTER, ANNA
Note on irregularities in the Flowers of *Tropæolum bistrangueum*, 196
- CLARK, REV. F. P.
Botany of the Isle of Man, 89
- CROZIER, GEORGE
Note on the Manchester Caræx, 843
- CRICKSHANK, JAMES
List of *Juncus maritima* &c. observed in the neighbourhood of Dunfries, 257; Note on *Phacelia alternifolia*, 263; *Arenaria verna*, 263; Note on *Hieracium borealis*, 426; *Potentilla tridentata*, 426
- CURNOW, WILLIAM
List of *Juncus maritima* &c. found near Penzance, 609; Rarer Plants in the neighbourhood of Penzance, 1143
- DAMIS, J. F., M.D.
Note on *Inula Helenium* and *Ulex nanus*, 806
- DAWNEY, HON. W. H., F.L.S.
Note on *Lycopodium inundatum*, 145
- DAWSON, WM.
List of Agarics found near Hitchin, 968; New locality for *Barkhausia setosa*, 997; Note on *Agaricus macrothizus*, 997
- DENNES, G. E., F.L.S., B.S.
Explanations of the London Catalogue of British Plants, 1014; Notes on some Queries about the London Catalogue of British Plants, 1098
- DOUBLEDAY, EDWARD, F.L.S.
Lilium Martagon, 62
- DOUBLEDAY, HENRY
Oxlips found at Bardfield, supposed to be identical with *Premula elatior* of Linnaeus and the German Botanists, 204, 976; *Lavatera Olbia* in Epping Forest, 265
- DUNCAN, ROBERT DICK
Note on *Linaria Cymbalaria*, 711;

- Note on the late flowering of the
Fuchsia, 872; *Phlox subulata*, 872;
Eaton, Wm. (Thomas), 1844;
Additions to the Rhodogamio Flora of
the moorland round Edinburgh, 405;
1456; Note on *Hieracium borealis*,
491; On the Hygrometric Qualities
of the Seta of Mosses, 491; Notice
of a new British Cerastium, 497;
Correction of an error in Mr. Ed-
monston's List of Edinburgh Plants,
1522; Note on the formation of a
Herbarium, 675; Note on drying
Plants for the Herbarium, 676;
Note on *Cerastium triflorum*, 677;
Remarks on botanical Classification,
759, 978; Shetland locality for *Ox-
ycoccus echinatus*, 272; Note on
Yucca triphylla, 904; *Villarsia
nymphoides*, 904; *Carex boen-
ninghausiana*, 905; *Cetaria septen-
trionalis*, 905; Remarks on Dr. Ayres'
Cypripedium on the *Walden*, 906;
Note on *Equisetum arvense*, 907;
Notes on British Mosses, 1083;
Edwards, Edward, 1844;
Lupinus pusillus, 422; *Cyperus fuscus*,
428; Note on *Pyrausta*, 428;
Habitats for *Pterocarya tetragyna*
and *Carex pseudocyperus*, 428;
Enquiry respecting *Orchis hircina*
and *Orchis maculata*, 555; Note on
Conwallia bifolia as a reputed Brit-
ish species, 579; Note on the Sur-
rey locality for *Fritillaria meleagris*,
580; *Lithospermum purpureo-
caeruleum*, 580; *Paeonia corallina*, 580;
Scilla autumnalis, 580; Habitat for
Thelypoda officinale, 581; *Asperugo
procumbens* a Kentish plant, 661;
Note on *Cypripedium alpinum* at Low
Leyton, 711; *Cotyledon lutea*, 712;
Paeonia corallina, 713; *Crocus bi-
ennis* a Kentish plant, 1079; *Sile-
ne Armeria*, 1080; *Dianthus Armeria*,
1080; Plants at Eitham in 1844,
1080; Plants at Eitham in 1844,
1080;
EVANS, JOHN, 1844;
Inland localities for maritime Plants,
331;
FITT, GEORGE, 1844;
Remarks on some species of *Oenopo-
dium*, 1136;
FLOWER, THOMAS BACON, F.L.S., B.S.,
Localities of some of the rarer Plants
found in the vicinity of Bristol, 68;
Errata in foregoing localities, 182;
Lastrea Thelypteris, 182; *Phyteu-
s officinale*, 132; *Oedoceras Epili-
num*, 132; Note on the supposed
new British *Cuscuta*, 581; Note on
the locality of *Paeonia corallina*, 616;
FORSYTH, EDWARD, V.P.L.S., 1844;
Note on *Centranthus edicatus*, 648;
Note on *Aspidium spinulosum*, 814;
Notes on botanical Classification,
918; Note on *Primula elatior*, 974;
FARMER, SAMUEL, 1844;
List of some of the rarer Plants observed
in the neighbourhood of Birming-
ham, 261; Additions to Mr. Flow-
er's List of Plants in the vicinity of
Bristol, 327;
GARDINER, WILLIAM, JON., 1844;
Sketch of an Excursion to the Clou-
d Mountains, in July and August,
1840, 212; An hour's Botanizing
among the Falls of Tawers, 295;
Contributions towards a Flora of the
Bredahe Mountains, 458; Two
botanical visits to the Reek, Linn
and the Den of Ayley, in April and
June, 1842, 899; List of a few of
the Botanical Remains observed in
Scotland in 1843, 915; *Alectorica
subulata*, 939; Corrections of some er-
rors, 972; The Sillaw Hills, 972;
GROSS, GEORGE STRATFORD, 1844;
A Flora of the neighbourhood of Saf-
fron Walden, Essex, 408, 688; On
the supposed new British *Cuscuta*,
466, 770; Rarer Plants observed
near Weymouth, 735; Rarer Plants
observed at Weston-super-Mare, 787;
Rarer Plants found near Ventnor,
Isle of Wight, 788; Notice of a Vi-
olet to Black Notley, Essex, 817;
Notice of a *Cordium* found near Saf-
fron Walden, 902; Note on *Primu-
la elatior*, 996; Additional Plants
found near Safron Walden, 1123;
GROSS, JAMES M., 1844;
Rare Plants near Coggeshall, Essex,
1844;
GIBSON, SAMUEL, 1844;
Enquiry relating to the Plates of
Leighton's 'Flora of Shropshire', 77;
Remarks on the British *Carices*, 128;
Remarks on the List of Plants (Phy-
tol. 77), 129; *Avena alpina*, 129;
On British species and varieties of
the genus *Sagina*, 777; Note on *Lo-
lium multiflorum*, 201; Note on the
two forms of *Munotropa*, 201; Notes
on *Arenaria tuba*, *marina* and *me-
dia*, 217; Enquiry respecting *Carex
axillaris* and *remota*, 263; Enquiry

- respecting *Bromus commutatus*, 264; Additions to the List of Wharfedale Mosses, 291; Note on *Carex tenella*, 292; Note on *Sagina maritima*, 293; Note on a criticism in Taylor's 'Annals,' 333; Note on *Carex axillaris* and *remota*, 335; Additional Manchester Plants, 366; Enquiry respecting *Bryum pyriforme*, 398; Note on *Hypericum perforatum*, β . *angustifolium*, 427; Curious state of *Carex panicea*, 462; Note on *Onoclea sensibilis*, 492; Reply to Mr. Watson's enquiry respecting Mr. S. Gibson, 556; On the habits of *Equisetum Telmateia* (fluviatile, Sm.), 617; Note on *Geranium nodosum*, 618; Note on the viviparous Grasses, 619; *Linaria Bauhinii*, 620; Note on the preservation of colour in specimens of Plants, by immersing them in boiling water, 672; Enquiry respecting *Equisetum arvense* and *E. Drummondii*, 680; Enquiry respecting *Carex distans*, 680; Note on *Epimedium alpinum*, 715; Note on an apparently undescribed British *Carex*, 715; Note on an apparently undescribed *Hieracium*, 741; Note on Plants apparently indigenous, 742; Note on *Cystopteris regia* and *alpina*, 742; Plants observed in the Vale of Calder, 773; Note on *Carex distans*, 777; Note on a new British *Carex*, 778; Note on *Carex boenninghausiana* and *C. axillaris*, 779; Note on *Carex muricata*, 779; Note on *Cynosurus echinatus*, 815; Note on *Poa maritima*, 816; Note on the *Hieraciums*, 866; Note on *Carex pseudo-paradoxa*, 867; Note on an apparently new British *Carex*, 869; On *Hieracium hypochaeroides*, 907; Further remarks on *Carices*, 1038; *Carex paradoxa*, 1119
- GRAY, PETER
A List of the rarer Flowering Plants and Ferns of the neighbourhood of Dumfries, with remarks on the Physical Conditions of the District, 416
- GREENWOOD, ALFRED
List of Mosses found near Penzance, 997; Note on *Anthyllis vulneraria*, 1000, 1077; Note on *Equisetum Telmateia*, 1112
- GREVILLE, R. KAYE, LL.D., F.L.S., B.S.
List of Algae from Guernsey, 172; Note on *Fucus Mackaii* of Turner, 465
- GRIFFITHS, A. (Miss)
Note on *Bryum Tozeri*, 521
- GRIFFITHS, A. W. (Mrs.)
Note on the appearance of *Gelidium rostratum* in Scotland, 203; Note on *Gigartina compressa*, 554
- GRINDON, LEOPOLD H.
Drosera rotundifolia, β . *ramosa*, 79; *Orobanche barbata*, 79; *Tilia*, 79; *Lycopodium*, 79; *Silene nutans*; Quinary arrangement of the parts of the flower in *Oenothera grandiflora*, 94; Substitution of Leaves for Petals in a *Dahlia*, 94; *Veronica montana*, 111; *Sedum rupestre*, 130; *Habenaria chlorantha*, 130; *Anagallis cærulea*, 130; Sketch of Botanical Rambles in the vicinity of Bristol, 564; Note on viviparous Grasses, 584; Note on *Polygonum Convolvulus*, 584; Arrangement of a Herbarium, 621; Note on drying Plants for the herbarium, 714; A few more words on the London Catalogue, 1077
- GUTCH, J. W. G.
A List of Plants in the neighbourhood of Swansea, 104, 118, 141, 180; *Polygonum maritimum* &c., 205; Additions to the List of Plants met with in the neighbourhood of Swansea, 377
- HANSON, WILLIAM
Impatiens fulva, 63; *Phascum axillare* and *patens*, 426; Short account of an Excursion to Tilgate Forest and the West Hoathly rocks, 744
- HARDY, JOHN
Curious Fern, 92
- HASLAM, S. H.
Remarks on the threatened extermination of rare Plants by the rapacity of collectors, 544
- HENFREY, ARTHUR, A.L.S.
Description of a species and variety of the genus *Statice*, known to British botanists as the *Limonium Anglicum minus* of Ray's Synopsis, 561; Note on Vegetable Morphology, 582; Note on viviparous Grasses, 620
- HENNESS, JOHN R.
Yellow-flowered variety of *Gentiana Amarella*, 78; Notes on the Change of Colour in the Flowers of the *Hydrangea*, 1110; Note on *Anagallis cærulea*, 1111; Note on the Bulbs of *Achimenes pedunculata*, 1112
- HEPPENSTALL, JOHN
Cystopteris fragilis, 330

- HEWETT, WILLIAM
Birch wine, 780
- HILL, ROBERT SOUTHEY
Note on *Primula elatior*, &c. 187
- HILL, WALTER
Habitat for *Cynodon Dactylon*, 870
- HOLMAN, HENRY MARTIN
Additions to Luxford's 'Reigate Flora,' 51
- HORE, REV. W. S., M.A., F.L.S., B.S.
List of Plants found in Devonshire and Cornwall, not mentioned by Jones in the 'Flora Devonensis,' 160; Note on *Trichonema Columnæ*, 203; *Narcissus poeticus*, 203; Note on *Polypodium fragrans*, 873
- IBBOTSON, H.
Rarer Plants found near Castle Howard, 577; List of Mosses found near Castle Howard, 781
- ILOTT, WILLIAM
Trifolium incarnatum, 198; Note on the Habitats of *Equisetum Telmateia* (fluvatile, *Sm.*), 295, 648; Note on *Centranthus Calcitrapa*, 616
- INGALL, THOMAS
Teucrium Botrys found in Surrey, 1086
- IRVINE, AL.
Short account of an Excursion to Cobham, Kent, 36
- JENNER, EDWARD
New locality for *Jungermannia Turneri*, 718; Surrey locality for *Schistostega pennata*, 718; Erratum, 718
- JENNER, REV. HENRY LASCELLES
Anagallis arvensis with white flowers, 366
- JOHNS, REV. C. A., F.L.S.
List of Mosses found in the vicinity of Leith Hill, Surrey, 199; New habitat for *Bryum Tozeri* and *Hypnum catenulatum*, 200
- JORDAN, ROBERT C. R.
Lotus angustissimus, 293; Monograph of the British Roses, 293; Rarer Plants in the neighbourhood of Teignmouth, 827; Note on *Oxalis corniculata*, 840
- KING, SAMUEL
A Botanical Excursion in Teesdale, 113; On the arrangement of a Herbarium, 585; List of Plants in the dried up bed of a wear on Luddenbrook, in July, 1844, 1096; *Carex paradoxa*, 1122
- KNIGHT, ALFRED
Note on *Fragaria elatior*, 649
- LANGTHORN, R.
Remarks on the Fern Lists, 524
- LANKESTER, EDWIN, M.D., F.L.S., B.S.
True office of the Earth in relation to Plants, 233; Observations on the publication of Local Lists of Plants, 546
- LAWRENCE, JOHN
Note on *Stipa pennata*, 1141
- LEES, EDWIN, F.L.S., B.S.
Notice of Plants in the vicinity of Aberystwith, 38; *Polypodium Dryopteris* and *Allosorus crispus*, 46; *Asplenium viride*, 46; On the parasitic growth of *Monotropa Hypopitys*, 97; Note on the genus *Tilia*, 111; Additional facts on *Monotropa Hypopitys*, 171; Economical use of the Brake in the Forest of Dean, 263; Enquiry respecting *Byssus barbata*, 428; Remedial use of a Fern called *Dail hlog y Tân*, 521; New habitat for *Lepidium Draba*, 679; Note on *Osmunda regalis*, 748; A word on Worcestershire Botany, 969; Note on *Botrydium granulosum*, 1019; Note on the habitat of *Enanthe pimpinelloides*, 1020
- LEIGHTON, REV. W. ALLPORT, B.A., F.B.S.
Astrantia major, 111; Notes on the genus *Tilia*, 147
- LOWE, JAMES
Note on *Cystopteris alpina* and *regia*, 1002
- LUXFORD, GEORGE, A.L.S., F.B.S.
Botanical Notes, 42; Notes on *Gentiana Amarella*, *Linn.*, and *G. germanica*, *Willd.*, 381; Notes on the Baobab Tree, 433; Note on a locality of *Equisetum Telmateia* (fluvatile, *Sm.*), 621; Note on *Carex boeninghausiana*, 650; Notes on *Epipactis latifolia*, 681; Note on the Gravesend locality of *Pæonia coralina*, 683; Notes on *Carex teretiuscula*, *C. paradoxa*, *C. paniculata*, and Mr. Gibson's *C. pseudo-paradoxa*, 895, 918; Note on *Carex paradoxa*? 1021; Note on Mr. Gibson's paper on *Carices*, 1081
- MAUND, BENJAMIN, F.L.S.
Value of Botanical Notes, 45; Supposed effects of Chlorine on Blue Flowers, 45
- MILL, G. G.
Observations on the dissemination of the Seeds of Plants, 846; List of Flowering Plants in the neighbourhood of Great Marlow, 983
- MILL, J. S.
Rare Plants in West Surrey, 30; Isa-

- tis tinctoria, 39; Note on Plants in the neighbourhood of Guildford, 40; Cnicus Forsteri, 61; Additional Guildford Stations, 64; Polygonum dumetorum, 91; Rarer Plants in the Isle of Wight, 91; Corrections and additions to the List, 139
- MITTEN, WILLIAM
Bupleurum tenuissimum, 203; Note on Linaria spuria and L. Elatine, 365; New locality for Halimus pedunculatus, 366; Note on Bryum androgynum, 616
- MOORE, DAVID, A.L.S., F.B.S.
Lycopodium clavatum, 30
- MORRIS, REV. F. ORPEN, M.A.
Note on the effects of the late mild Winter, 936
- MOXON, JAMES EDWARD
Note on Primula elatior, 203; Flora of Sandringham, 596, 630; Localities for Villarsia nymphaeoides, 747; Habits and mode of growth of Villarsia nymphaeoides, 747
- MURRAY, STEWART
Note on Villarsia nymphaeoides, 938
- NEWMAN, EDWARD, F.L.S., B.S.
Lycopodium clavatum, 1; L. annotinum, 17; Aconitum Napellus, 30; Inula Helenium, 31; Lycopodium alpinum, 33; L. inundatum, 49; L. Selaginoides, 65; L. Selago, 81; Lilium Martagon, 62; Monotropa Hypopitys, 94; Isoetes lacustris, 153; True office of the Earth in relation to Plants, 173; Pilularia globulifera, 209; Equisetum hyemale, 273; Note on the supposed parasitism of Monotropa Hypopitys, 297; Equisetum Mackaii, 305; E. variegatum, 337; Note on Equisetum hyemale, var. Mackaii, 398; County Lists of British Ferns, 398; Yorkshire, 448; Lancashire, 476; Cheshire, 480; Staffordshire, 508; Warwickshire, 510; Worcestershire, 512; Somersetshire, 964; Supposed new British Fern 462, 526; Equisetum palustre, 529; E. palustre, var. polystachion, 593; var. nudum, 627; Asplenium viride and Ham Bridge, 671; Cystopteris montana a British Fern, 671; Equisetum fluviatile, 689; E. sylvaticum, 693; E. umbrosum, 697; A word on Lastræa spinulosa, 718; 745; Equisetum Telmateia, 721; E. arvense, 727; Note on the second flowering of a Horse-chestnut Tree, 783; Correction of an error in the description of Equisetum Telmateia, 898; What is the Polypodium fragrans of Linneus? 839; On assisting Nature in the dissemination of Plants, 840; Proposal as to the Nomenclature of the Bardfield Oxlip, 996; Note on Asplenium fontanum, 1142
- NEWNHAM, CHRISTOPHER A.
Lathyrus Aphaca, 390
- NOTCUTT, W. L.
Rarer Plants near Southampton, 228; Note on the discovery of Statice tatarica near Portsmouth, 492; Correction of an error respecting the discovery of Statice tatarica near Portsmouth, 492; Catalogue of Plants observed in the neighbourhood of Daventry, Northamptonshire, 500; Arrangement of a Herbarium, 647; Friendly hint to Subscribers, 648; Note on Statice rariflora, 1612; A few days in Suffolk, 823; Additional Notes on Suffolk Botany, 1487
- PALMER, EDWARD
Note on Conopogon didymus, 1082
- PAMPLIN, WILLIAM, A.L.S., F.L.S.
Some account of the Botanical Collections recently made by Dr. Theodore Kotschy (for the Württemberg Botanical Union) in Nubia and Abyssinia, 389, 419, 467, 482; Enquiry respecting Nymphaea alba minor, 525
- PEETE, WILLIAM, F.L.S.
Localities of Orchis hircina, Scop., and Orchis macra, Lindl. 587
- PEIRSON, DANIEL
Plants in the neighbourhood of Cornwall, Cornwall, 30
- PERRY, W. G.
Notes on an old volume of coloured Impressions of Plants, 700
- PRIEST, J. P.
Note on Cerastium semitragacanthum and tetrandrum, 975
- QUEKETT, EDWIN J., F.L.S., B.S.
On the escape of Fluid from the apex of the Leaf in Calla palustris, 218
- QUEKETT, JOHN
Note upon the Fungus parasitical on Fishes, 232
- RALES, JOHN
Localities of British Algae in addition to those given in Harvey's Manual, 193; List of Algae collected in Jersey, 202; Note on Alaria esculenta, 490; New locality for Graciloupia filicina, 490

- RECHENBACH, R. M.**
 Yorkshire locality for *Asplenium fontanum*, 1084; for *Lastrea Thelypteris*, 1086
- RELEY, MERRILL**
Polypodium Dryopteris and calcareous, 94
- RILEY, J.**
 Enquiry respecting Sieber's *Synopsis Filicum*, 166
- ROSS, J.**
 Note on *Fritularia Melagris*, 814
- ROWLAND, JOHN**
 A Catalogue of Plants found growing in the neighbourhood of Wrexham, Cheshire, Denbighshire, 421
- ROUSELLY, FREDERICK, (ROBERT, FREDERICK, by mistake)**
Crabgrass, 132
- RUTLAND, THOS. G.**
Adiantum Capillus-Veneris in the Isle of Man, 150; On the mode of growth of *Monotropa Hypopitys*, 329; On the nature of the Byssoid substance found investing the Roots of *Monotropa Hypopitys*, 341
- SALMON, J. D.**
 Plants observed in the neighbourhood of Shoreham, Sussex, 130
- SARVEY, THOS. BELL, M.D., F.L.S.**
 Note on the Weymouth Stations of *Lathyrus Nissolia* and *Salicornia radicans*, 886; Effects of cultivation on *Hyacinthus non-scriptus*, 938; Three days' Botanizing at Selborne, 1132; Note on *Athyrium Filix-femina* as a Tree-fern, 1141
- SANSON, THOMAS, A.L.S., F.B.S.**
 Description of a metamorphosed variety of *Polytrichum commune*, 93
- SIDEBOTHAM, JOSEPH**
 Plants at Nottingham, 78; *Silene nutans*, 111; *Equisetum fluviatile*, 130; On the immersion of specimens of Plants in Boiling Water, 233; Note on the Oxlips from Bardfield, 238; *Schistostega pennata*, 297; Enquiry respecting the British Oaks, 831; Additions to the rarer Plants observed at Nottingham, 365; Note on the mildness of the weather, 401; Note on *Dicranum adiantoides* and *taxifolium*, 581; List of Mosses found near Manchester, 645; Note on *Equisetum Telmateia*, (fluviatile, Sw.), 649; Note on *Symphytum aspermatum*, 679; Note on the genus *Sphagnum*, 671; Note on the dispersion of the Seeds of *Oxalis Acetosella*, 903; Note on the arrangement of Mosses for the Herbarium, 939; Remarks on the London List of British Plants, 972; Sketch of a Botanical Ramble to Twill dū, June, 1844, 1036; Note on Mr. Gibson's Remarks on Carices, 1082
- SIMPSON, SAMUEL, F.B.S.**
 Botanical Excursion to Teesdale, 74; *Avena alpina* found in Yorkshire 75; *Lastrea rigida*, 90; *Gentiana Pneumonanthe* with white flowers, 91; Enquiry respecting *Pyrola media*, 237; *Chrysosplenium alternifolium*, 238
- SPARKES, GEORGE**
Sium nodiflorum, 92; *Anagallis cærulea*, 92; On the poisonous effects of the Seeds of Hemlock, 459; Note on *Agaricus armatochelis* and *A. deliciosus*, 490; On the absence of *Jasione montana* and *Verbena officinalis* from the vicinity of Edinburgh, 610; Note on British Plants occurring in foreign countries, 610; Note on the Botany of France, 844; Note on Potass and Soda produced by the ashes of Plants, 844; Note on *Agarics*, 844; List of *Agarics* found near Bromley, Kent, 1000
- SPRUCE, RICHARD, F.B.S.**
 Three days on the Yorkshire Moors, 101; Discovery of *Leskea pulvinata*, 189; List of Mosses collected in Wharfedale, 197; Note on *Didymodon flexicaulis*, 197; Mosses near Castle Howard, 198; *Bryum pyriforme*, 429; On the folia accessoria of *Hypnum filicinum*, 459; List of Mosses and Hepaticas collected in Easdale, Yorkshire, 540; Note on *Carex paradoxa*, 842; Note on *Carex axillaris*, 842; Note on *Veronica triphyllos*, 843; *Veronica Buxbaumii*, 843; *Carex paradoxa*, 1121
- STABLES, W. ALEX., F.B.S.**
 Discovery of *Monotropa Hypopitys* at Cawdor, Nairnshire, 132; Additions and corrections to the Scottish localities of *Lycopodium inundatum*, 147; *Lycopodium annotinum*, Selago and Selaginoides, 147
- STEPHENS, H. O.**
Cucubalus baccifer, 295; Information on *Byssus barbata*, (Eng. Bot.), 461; Locality for *Epimedium alpinum* near Bristol, 774; Note on the *Polypodium fragrans* of Hudson, 874; Note on *Cystopteris montana*, 875

STREETEN, ROBERT J. N., M.D.

Note on the second British species of *Monotropa*, 236

TATHAM, JOHN, JUN.

List of Plants growing about Settle, 87; New locality for *Saxifraga crenata*, 845; Note on *Hieracium prenanthoides*, 845

TAYLOR, THOMAS, M.D.

Descriptions of new Mosses and Lichens from the Australian Colonies, 1093

THOMPSON, SILVANUS

Note on *Woodсия Ilvensis*, 331; Note on *Veronica Buxbaumii* and *V. triphylos*, 648; Note on *Asplenium fontanum*, 1081

THOMPSON, WILLIAM

Note on *Equisetum umbrosum*, 747

THWAITES, G. H. K.

Asplenium lanceolatum, 75; *Anagallis arvensis* and *cærulea*, 167

TOWNSEND, F.

Method of arranging the Cryptogamia in a herbarium, 901; Note on *Anthyllis vulneraria*, 1079

TURNER, HV. JOHN

Enquiry respecting the Parasite on the Gold-fish, 231

WARD, NATHANIEL

List of rare Plants found in Devonshire, in the year 1840, 20

WARD, NATHANIEL BAGSHAW, F.L.S., B.S.

Lilium Martagon, 76; List of Plants collected by M. Schimper in Abyssinia, 115

WATSON, HEWETT COTTRELL, F.L.S. B.S.

Description of a *Primula* found at Thames Ditton, Surrey, exhibiting characters both of the Primrose and the Cowslip, 9; Objection to the alphabetical arrangement of local lists of Plants, 160; Additions to the Flora of Moray, 151; Seasons of *Crocus nudiflorus*, 188; The genus *Tilia*, 189; Note on the Oxlips from Bardfield, 232; Mr. Watson's grounds for connecting the name of Mr. S. Gibson with some botanical Localities, 524; On the supposed new British *Cerastium*, 586; On the proposed change in the Name of *Equisetum limosum*, 587; Places of growth of *Equisetum fluviatile* of Smith, 588; The supposed locality of *Geranium nodosum* near Halifax, 588; Unusual habitat of *Limosella aquatica*, 678; Note on the *Cerastium latifolium* of the Linnean Herbarium, 717; The least troublesome

method of drying Plants for the herbarium, 770; Surrey localities for *Linaria spartea* and *Senebiera didyma*, 775; Succession Buds in the axilla of a single leaf, 776; Leaf-buds produced from Roots, 776; Notes on the *Hieracium nigrescens* and *Hieracium hypocheroides*, 801; A few more words on the habitats of *Equisetum Telmateia*, 807; On the Varieties of *Betula alba* of Linnæus, 821; Note on Mr. Gibson's *Hieracium hypocheroides*, 841; Mr. Bowman on the specific identity of *Hieracium murorum* and *H. maculatum*, 841; Note on the Bardfield and Claygate Oxlips, 1001; Nomenclature of Ferns in the British British Flora and the London Catalogue of British Plants, 1017; Note on the British species of *Enanthe*, 1083; Facts about Nomenclature in the London and Edinburgh Catalogues, 1128; Note on the spotted *Hieracia*, 1138

WESTCOMBE, THOMAS

Localities of a few Plants lately observed, 780

WESTCOTT, FREDERICK, A.L.S.

Descriptions of two new Species of *Maxillaria* from the Organ Mountains, Brazil, 7; Descriptions of two new Orchidaceous Plants from Para, 54; Note on the narrow-leaved *Hypericum* from Ludlow, 427; Plants observed in the neighbourhood of Ludlow, Shropshire, 567; Note on *Adiantum Capillus Veneris*, 579

WHEELER, DANIEL, M.R.C.S.L.

Note on the poisonous properties of the Fruit of *Conium maculatum*, 492; Notes on the new British *Cuscuta*, 753

WILLIAMSON, ALEXANDER

Note on *Villarsia nymphæoides*, 814; Note on *Impatiens fulva*, 814

WILSON, WILLIAM

Polypodium calcareum and *Dryopteris*, 74; *Woodсия Ilvensis* and *hyperborea*, 74; *Lathræa squamaria*, 92; Notes on *Monotropa Hypopitys*, 148; Note on *Sagina apetala* and *maritima*, 234; *Carex tenella*, 234; *Isoetes lacustris*, 235; *Myrica Gale* with androgynous Flowers, 235; Notes on *Monotropa*, 235; *Trifolium filiforme*, 293; *Poa maritima* and *Poa distans*, 294; *Potamogeton setaceum* of Hudson, 294; *Circæa*

alpina and *C. Lutetiana*, 294; *Scleranthus perennis*, 294; *Carex axillaris* and *C. remota*, 299; On *Monotropa Hypopitys*, 332; On *Carex tenella*, 333; Note on the Stomata of *Equisetum hyemale*, 336; Note on *Bryum pyriforme*, 425; *Hierochloa borealis*, 462; *Dicranum taxifolium* and *adiantoides*, 611; *Dicranum osmundioides* and *bryoides*, 612; *Calla Æthiopica*, 612; On the Buds of *Robinia pseudacacia*, 613; On the Buds of *Conifera*, 614; *Vinca major*, 614; On the glandular woody tissue of *Conifera*, 615; On the spiral porous cells in the wood of the Yew-tree, 615; Researches in Embryogeny, 625, 657, 731, 849, 881; Mr. Gibson's query on *Carex distans*, 746; Reply to Mr. Gibson on *Carex distans*, 808; On the plurality of Buds in the axilla of a single leaf, 813; Enquiry respecting *Phascum multicapsulare*, 908; On *Jungermannia Francisci* and *J. byssacea*, 937; On the parasitism of

Orobanche, 937; Reply to the enquiry about *Bartramia falcata*, 1085; On the British species of *Sphagnum*, 1113; Note on Yew-trees, 1131

WOLLASTON, T. V., B.A.

List of a few Plants observed in Lincolnshire, 522

WOOD, J. B., M.D.

New localities for *Carex elongata*, 198; New localities for *Carex axillaris*, 199; List of Plants observed in the neighbourhood of Manchester, 279; Description of *Carex axillaris*, 300; Note on Mr. Gibson's *Carex pseudo-paradoxa*, 809

WOODS, JOSEPH, F.L.S.

Notes of a Botanical Excursion in France in the Summer of 1843, 785, 828, 853; Note on *Carex teretiuscula*, 1140

WORSLEY, ANNA

Note on *Crocus vernus* and *C. nudiflorus*, 167; *Trifolium incarnatum*, 236; New locality for *Carex clandestina*, 299

ALPHABETICAL LIST OF SUBJECTS.

- Aberystwith, plants gathered near, 38
 Abyssinia, plants collected in, 115
 Achimenes pedunculata, bulbs of, 1112
 Aconitum Napellus, 30
 Adansonia digitata, 433
 Adiantum Capillus-Veneris, 150, 579
 Æcidium, supposed new British, 553
 Agarics, 844
 Agaricus aimatochelis, 490 : deliciosus,
 490 : macrorrhizus, 997
 Airley, den of, 898
 Alaria esculenta, 490
 Alecortia jubata, 939
 Algæ, British, 193 : from Guernsey, 172 :
 from Jersey, 202
 Allosorus crispus, 46
 Alphabetical arrangement of lists, 150
 Anagallis arvensis, 76, 167, 366 : *caerulea*,
 76, 92, 130, 167, 1111
 Anemone apennina, 650
 Anthemis maritima, 1110
 Anthyllis vulneraria, 1000, 1019, 1077,
 1079
 Aponogeton, seeds of, 64
 Arabis stricta, 132
 Arenaria marina, 217 : media, 217 : ru-
 bra, 217 : verna, 263
 Arrangement, alphabetical, 150
 Arrow-poison plant, 47
 Asperugo procumbens, 651
 Aspidium recurvum, 773 : spinulosum,
 814, 845
 Asplenium fontanum, 1081, 1084, 1142 :
 lanceolatum, 75 : viride, 46, 671
 Astrantia major, 111
 Athyrium Filix-femina, 1141
 Australian colonies, new mosses and li-
 chens from, 1093
 Avena alpina, 75, 129
 Babington, C. C., Manual of British Bo-
 tany, 623, 635
 Backhouse, James, Visit to Australian
 Colonies, 549, 570, 606, 664, 737
 Badenoch, Botanical Ramble into 601
 Balfour, J. H., 'Edinburgh Catalogue, 109
 Baobab tree, 433
 Bardfield oxlip, 204, 205, 975, 996, 1001
 Barkausia setosa, 997
 Barry, sands of, 445
 Bartramia falcata, 1085
 Bentall's drying-paper, 1018
 Berwickshire Naturalists' Club, 515
 Betula alba, 821
 Birch wine, 780
 Birmingham, plants growing near, 261
 Black Notley, visit to, 817
 Blue flowers affected by chlorine, 45
 Botanical notes, 42 ; value of, 45
 Botanical Society, Catalogue of Plants,
 309 : Meetings of, 969 : Transac-
 tions of, 284, 311, 348, 391
 Botany of the Isle of Man, 89
 Botrydium granulosum, 1019
 Bowman, J. E. death of, 166
 Brakes, economical use of, 263
 Breadalbane mountains, plants of, 468
 Bristol, plants found near, 68, 132, 327 :
 botanical rambles near, 564
 British roses, 293
 Bromley, Agarics found near, 1000
 Bromus commutatus, 264
 Bryum androgynum, 616 : pyriforme, 398,
 425, 429 : Tozeri, 200, 521
 Buds, leaf, from roots, 776 ; succession, in
 axil of a leaf, plurality of, 776, 813
 Bupleurum tenuissimum, 203
 Byssus barbata, 428, 461
 Calamintha, new British, 768
 Calder, plants growing in the vale of, 773
 Calla Æthiopica, 218, 619
 Campanulas, 935
 Carduus, supposed new, 902
 Carex axillaris, 199, 263, 299, 300, 335,
 779, 842 : boeninghansiana, 650,
 779, 905 : clandestina, 299 : distans,
 294, 680, 746, 777, 808 : elongata,
 198 : fulva, 924 : muricata, 779 :
 panicea, 462 : paniculata, 895, 918 :
 paradoxa, 842, 895, 918, 1021, 1119,
 1121, 1122 : pseudo-cyperus, 428 :
 pseudo-paradoxa, 809, 843, 867, 895,
 918, 1021, 1119, 1121, 1122 : remo-
 ta, 263, 299, 335 : speirostachya, 924 :
 supposed new British, 715, 778, 869 :
 tenella, 234, 292, 333 : teretiuscula,
 895, 918, 1140
 Carices, British, 128 : further remarks on,
 1038, 1081, 1082
 Castle Howard, mosses found near, 198,
 781 : plants found near, 577
 Catalogue of Bot. Soc. Edinb. 309
 Centranthus Calcitrapa, 616, 648

- Cerastium latifolium*, 677, 717 : semidecandrum, 975 : supposed new British, 497, 586 : tetrandrum, 975
Ceterach officinarum, 1110
Cetraria sepincola, 905
Chara, new British, 174
Chenopodium, remarks on some species of, 1136
 Chlorine, its effects on blue flowers, 45
Chrysosplenium alternifolium, 187, 238
Cibotium Barometz, 63, 427
Circea alpina, 294 : *Lutetiana*, 294
 Classification, remarks on botanical, 759, 885, 918; 960, 977, 1009
 Clova mountains, excursion to, 212
Onitis Forsteri, 61
 Oebelin, botanical excursion to, 36
 Coggeshall, plants growing near, 834
 Colour in plants, the influence of light in producing, 589 : changed in flowers of the *Hydrangea*, 1110 : preserved by boiling water, 672
Coina, poisonous effects of, 490
Conium maculatum, poisonous properties of its fruit, 402
Conifera, buds of, 614 : woody tissue of, 616
Convallaria bifolia, 579
 Cornwall and Devonshire, plants of, 160
Coronopus didyma, 1082
 Cottages, three days on, 137
Cotyledon lutea, 712
 County lists of ferns, 398, 448 : Cheshire, 480 : Lancashire, 476 : Somersetshire, 964 : Staffordshire, 508 : Warwickshire, 510 : Worcestershire, 512 : Yorkshire, 449
 Cowslip, primrose and oxlip, 205
Crepis biennis, 1079
Crocus nudiflorus, 167, 188 : vernus, 167
Cucubalus baccifer, 265
Cuscuta Epilinum, 132, 553 : europæa, 1140 : supposed new British, 466, 522, 753, 770, 807
Gynodon dactylon, 870
Gynosurus eckinatus, 772, 815
Cyperus fuscus, 428 : longus, 131
Gystopteris alpina, 711, 742, 1002 : fragilis, 230 : montana, 671, 875 : regia, 742, 1002
Gytisus Laburpum purpureus, *C. coccineum*, 908
Dahlia substitution of leaves for petals, 94
 Dail Iloeg y Tâm, 521, 582, 589
 Daventry, plants found near, 500
 DeCandolle, death of, 95
 Devonshire, plants found in, 20 : and Cornwall, 160
Dianthus Armeria, 1080 : *Caryophyllus*, 63 : plumarius, 63
Dicranum adiantoides, 581, 611 : bryoides, 612 : *osmundioides*, 612 : *taxifolium*, 581, 611
Didymodon flexicaulis, 197
 Dispersion of seeds, 46
 Dissemination of plants, assisting, 840 : of seeds, 846
 Dock, economical use of, 398
 Don, David, death of, 133
Drosera rotundifolia, 79
 Drying-paper, Bentall's, 1008
 Dumfries, rarer plants found near, 416
 Dumfriesshire, list of its *Jungermanniæ* &c. 257
 Earth, its true office, 173, 293
 Edinburgh, additions to its plants, 405, 455, 522
 Eltham, plants at, 1080
 Embryogeny, researches in, 625, 657, 731, 849, 881
Epilobium roseum, 716
Epimedium alpinum, 715, 774
Epipactis latifolia, 681
Equiseta, 936
Equisetum arvense, 680, 727 : *fluvatile* (*limosum*, Sm.), 587, 689 : *hymnale*, 273, 330, 369 : *Maackii* (*elongatum*, Hook.), 305, 369, 398 : new British, 174 : palustre, 529 : var. *polystachion*, 593 : var. *nudum*, 627 : *sylvaticum*, 693 : *Telmatica* (*fluvatile*, Sm.), 180, 295, 555, 588, 617, 621, 648, 649, 721, 807, 839, 1112 : *ambrosium* (*Drummondii*, Hook.), 680, 697, 747, 907 : *variegatum*, 337, 370, 440
Eriophorum alpinum, 94
 Erith, plants at, 1080
 Ergot of grasses, 685
 Eskdale, mosses collected in, 540
 Falls of Lawers, excursion to, 295
 Falmouth, plants growing near, 30
 Fern, curious, 92 : supposed new British, 462, 526
 Ferns, county lists of, 398, 448 : Cheshire, 480 : Lancashire, 476 : Somersetshire, 964 : Staffordshire, 508 : Warwickshire, 510 : Worcestershire, 512 : Yorkshire, 449 : remarks on lists of, 524 : nomenclature of, 1017
 Fishes, Fungus parasitical on, 231, 232
 Flora of the Isle of Wight, 132
 Fluid, escape of from apex of leaf, 218
Fragaria elatior, 649

- France, botanical excursion in, 785, 828,
853 : Botany of, 844
Freezing of water causing the splitting of
trees, 47
Fritillaria Meleagris, 580, 814
Fucus Mackaili, 465
Fungus, parasitical on living fishes, 231,
232
Furze, Irish, 76
Fuchsia, late flowering of, 874 : monstro-
sities in flowers of, 523
Gelidium rostratum, 203
Gentiana Amarella, 78, 381 : *germanica*,
381 : *Pneumonanthe*, 91
Geranium nodosum, 588, 618
Gigartina compressa, 554
Glasgow, botanical excursions from, 401
Gold fish, vegetable parasitic on, 231
Gordon, Rev. G., *Flora of Moray*, 124
Grasses, viviparous, 584, 619, 620
Grateloupia filicina, 490
Great Marlow, plants growing near, 983
Guernsey, Algæ from, 172
Guildford, plants growing near, 40, 64
Habenaria chlorantha, 130
Halimus pedunculatus, 366
Halstead, plants growing near, 746
Harvey, W. H., *Manual of Algæ*, 122
Heaths, 302
Hemlock, poisonous effects of its seeds,
459
Herbarium, arrangement of, 585, 621, 647,
675, 676, 683, 714, 770, 901, 939
Hieracia, 866 : spotted, 1138
Hieracium hypocheroides, 741, 801, 841,
865, 907 : *maculatum*, 841, 934 :
murorum, 841 : *nigrescens*, 801, 865 :
prenanthoides, 845 : supposed new
British, 741
Hierochloa borealis, 426, 462, 491
Hitchin, Agarics found near, 968
Hooker, Sir W. J., *London Journal of*
Botany, 164, 927, 1022 : *British*
Flora, ed. 5, 635
Horse-chesnut, flowering twice, 783
Hyacinthus non-scriptus, 938
Hydrangea, change of colour in the flow-
ers, 1110
Hygrometric properties of the setæ of
mosses, 491
Hymenophyllum Wilsoni, 90
Hypericum perforatum, narrow-leaved,
427, 461
Hypnum catenulatum, 200 : *filicinum*, 459
Impatiens fulva, 63, 814
Inland localities for maritime plants, 331
Inula Helenium, 31, 805
Iris foetidissima, 1079
Isatis tinctoria, 30
Isnardia palustris, 716, 770
Isoetes lacustris, 153, 235
Itinera Botanica, Johnson's, 909
Jamaica, neglected garden in, 80
Jasione montana, 610
Jersey, Algæ collected in, 202
Juncus diffusus ? 1140
Jungermannia byssacea, 937 : *Francisci*,
937 : *Turneri*, 718
Jungermannia &c. in Dumfriesshire, 257 :
near Penzance, 609
Kotschy's collections in Nubia and Cordo-
fan, 389, 419, 457, 482
Lapsana pusilla, 427
Lastrea recurva, 773 : *rigida*, 90 : *spinu-*
losa, 718, 745, 814, 845 : *Thelypte-*
ris, 132, 1085, 1110
Lathræa squamaria, 92
Lathyrus Aphaca, 330, 746 : *Nissolia*, 866
Lavatera Olbia, 265
Lawers, botanizing near the Falls of, 295
Leersia oryzoides, 1140
Lees, E., *Botanical Looker Out*, 420 :
Botany of Malvern Hills, 705
Leighton's *Flora of Shropshire*, 11, 22, 77
Leith Hill, mosses found near, 199
Lepidium Draba, 679
Leskea pulvinata, 189
Lichen, new British, 616
Light, its influence in producing green co-
lour in plants, 583
Lilium Martagon, 62, 76
Limosella aquatica, 678
Linaria Bauhinii, 620 : *Cymbalaria*, 711 :
Elatine, 168, 365 : *spartea*, 775 :
spuria, 168, 365
Lincolnshire, rarer plants growing in, 522
Linnean Club, excursion of, 1083
Linnean Transactions, 55, 71, 241, 488
Lists, remarks on, 129, 646
Lithospermum purpureo-caruleum, 580
Loch na gar, account of its plants, 536
Lolium multiflorum, 201
London Catalogue of British Plants, 932,
972, 1014, 1017, 1077, 1098, 1128
Lotus angustissimus, 293
Ludlow, plants growing near, 567
Lunularia vulgaris, 907
Luxford's Reigate Flora, additions to, 51
Lycopodia, British, 61
Lycopodium, 79 : *alpinum*, 33 : *annoti-*
num, 17, 147 : *claratum*, 1, 30, 63,
90 : *inundatum*, 49, 145, 147 : *sela-*

- ginoides, 65, 90, 147: Selago, 63,
81, 93, 147
- Lytham, plants in vicinity of 165
- Man, Botany of Isle of, 89
- Manchester, plants of, 279, 366: mosses
found near, 645
- Manual of British Botany, Babington's,
623
- Maritime plants, inland localities for, 331
- Maxillaria, two new species of described,
7
- Melittis grandiflora, 741
- Microscopical Society, Transactions, 322
- Mild winter, effects of, 936
- Mildness of weather, 491
- Monotropa Hypopitys, 94, 97, 132, 148,
171, 235, 297, 329, 332, 341: se-
cond species of, 236: two forms of,
201
- Moray, additions to Flora of, 151
- Morphology, vegetable, 582
- Mosses, British, notes on, 1033: of Castle
Howard, 198, 781: of Eskdale, 540:
hygrometric properties of their setæ,
491: of Leith Hill, 199: of Man-
chester, 645: of Wharfedale, 291
- Myosotis sylvatica, 649
- Myrica Gale, 235
- Nairnshire, Monotropa Hypopitys disco-
vered in, 132
- Narcissus, new British, 61: poeticus, 203
- Nature, love of, 301
- Newman, E. History of British Ferns, 945
- Notes, botanical, 42; value of, 45
- Nottingham, plants growing near, 78, 365
- Nubia and Cordofan, botanical collections
in, 389, 419, 459, 482
- Nymphaea alba minor, 525
- Oaks, British, 331
- Enanthe pimpinelloides, 1020, 1060, 1083
- Oenothera grandiflora, 94
- Onoclea sensibilis, 492
- Orchidaceæ, British, 62
- Orchidaceous plants, descriptions of two
new, 54
- Orchis hircina, 555, 587: macra, 555, 587
- Ornithopus perpusillus, 935
- Orobanche barbata, 79: parasitism of, 937
- Osmunda regalis, 748
- Oxalis Acetosella, 903: corniculata, 840
- Oxfordshire, cryptogamic plants of, 661,
702
- Oxlips, Bardfield, 204, 232, 238, 975, 996,
1001: at Thames Ditton, 9
- Pæonia corallina, 580, 616, 683, 713
- Paper, Bentall's drying, 1018
- Pelargonium tricolor, 31
- Penzance, Jungermannia found near, 609
mosses found near, 997: rarer plants
near, 1143
- Petroselinum segetum, 428
- Phascom alternifolium, 263: axillare, 426:
multicapsulare, 908: patens, 426
- Phyteuma orbiculare, 132
- Pilularia globulifera, 209
- Plants, apparently indigenous, 742: Bri-
tish occurring in foreign countries,
610: collections of Scottish, 909:
dissemination of, 840: localities re-
cently observed, 780: maritime, in-
land localities for, 331: observed in
the dried-up bed of a wear, 1096:
old volume of figures of, 700; potass
and soda produced by their ashes,
844
- Poa distans, 294: maritima, 294, 816
- Poison plant, preparation and effects of
the poison, 47
- Polygonum Convolvulus, 584: dumeto-
rum, 91: maritimum, 205: Raii,
205
- Polypodium calcareum, 74, 94: Dryopter-
is, 46, 74, 94, 556: fragrans, 839,
872, 873, 874
- Polytrichum commune, 93
- Potamogeton prælongus, 236: setaceus,
294
- Potentilla tridentata, 426
- Presl, K. B. Hymenophyllaceæ, 1044,
1100, 1115
- Primrose, cowslip and oxlip, 205
- Primula, 9, 397: elatior, 187, 203, 974,
996, 1018
- Protonema muscicola, 743
- Pyrola media, 237: uniflora, 428
- Pyrolæ, British, 296
- Quekett, E. J., on the ergot of grasses,
685
- Ranunculus hirsutus, 716
- Rapacity of collectors, 544
- Reed, curious form of, 146
- Reeky Linn, visit to, 898
- Reigate Flora, Luxford's, additions to, 51
- Rhinanthus Crista-galli, 296: major, 296
- Robinia Pseudacacia, 613
- Roses, British, 293
- Saffron Walden, Flora of, 408, 838, 1123
- Sagina apetala, 234: British, 177: mari-
tima, 234, 293
- Salicornia radicans, 866
- Saundringham, Flora of, 596, 630

- Sap in plants, 975
 Saponaria Vaccaria, 553
 Saxifraga crenata, 845 : Hirculus, 741
 Schimper, plants collected by, in Abyssinia, 115
 Schistostega pennata, 297, 718
 Scilla autumnalis, 580
 Scleranthus 521 : perennis, 294
 Scotland, botanical rarities collected in, 915
 Sedum rupestre, 130
 Seeds, dispersion of, 46 : dissemination of, 846
 Selborne, three days' botanizing at, 1132
 Selby, P. J., History of British Forest Trees, 44, 72, 228
 Senebiera didyma, 775
 Settle, plants growing near, 87
 Shetland Isles, Flora of, 1022
 Shoreham, plants growing near, 130
 Shropshire, Leighton's Flora of, 77
 Sidlaw hills, 972
 Sieber's Synopsis Filicum, 166
 Silene Armeria, 1080 : nutans, 94, 111
 Sium nodiflorum, 92
 Smilacina bifolia, 611
 Snow, red and green, 31
 Sonchus asper, 815 : oleraceus, 815
 Southampton, rarer plants found near, 328
 Sowerby, Supplement to English Botany, 27
 Specimens, immersion of in boiling water, 233
 Sphagnum, 871 : British species of, 1113
 Splitting of trees by freezing of water, 47
 Spontaneous appearance of plants, 31
 Staphylea pinnata, 146
 Statice, description of a species and variety, 561 : rariflora, 594, 611 : tatarica, 429, 492, 812
 Stellaria holostea, 264
 Stipa pennata, 1141
 Suffolk, a few days in, 823 : Botany of, 1107
 Surrey, West, rarer plants in, 30
 Swansea, plants growing near, 104, 118, 141, 180, 377
 Symphytum asperrimum, 679, 806
 Synopsis Filicum, Sieber's, 166
 Tamarix gallica, 131
 Taylor's Annals, criticism in, 333
 Teignmouth, rarer plants growing near, 827
 Teesdale, botanical excursion, 74, 113, 892
 Teucrium Botrys, 1086
 Tilsate forest, excursion to, 744
 Tilia, 79, 111, 147, 169, 189
 Tordylium officinale, 581
 Tragopogon pratensis, 94
 Trichonema Columnæ, 203
 Trifolium filiforme, 293 : incarnatum, 198, 236 ; stellatum, 167
 Tropæolum atrosanguineum, 196
 Twll dû, botanical ramble to, 1036
 Typha latifolia, 31
 Ulex nanus, 805 : strictus, 76
 Umbelliferae, fruit of, 554
 Urtica pilulifera, 806
 Utricularia, 259
 Vaucheria, 906 : terrestris, 743
 Ventnor, I. of Wight, rarer plants found near, 758
 Verbena officinalis, 610
 Veronica Buxbaumii, 648, 843, 872 : montana, 111 : triphyllus, 648, 843, 904
 Vicia lævigata, 775
 Villarsia nymphæoides, 747, 814, 904, 938
 Vinca major, 614
 Violet, spurless variety of, 80
 Viviparous grasses, 584, 612, 620
 Volume, old, notes on, 700
 Ward, N. B., On the Growth of Plants, &c. 221
 Water-lily, white, 302 : small white, 716
 Waterton, C., Essays on Natural History, 1070
 Watson, H. C., Geographical Distribution of British Plants, 635
 Weather, mildness of, 491
 West Hoathly rocks, excursion to, 744
 Weston super Mare, rarer plants growing near, 757
 Weymouth, rarer plants growing near, 735
 Wharfedale, mosses found in, 197, 291
 Wight, Isle of, rarer plants in, 91, 132 : Flora of, 132
 Wild flowers in August, 302
 Woodsia hyperborea, 74 : Ilvensis, 74, 331
 Worcestershire Botany, 969
 Wrexham, plants growing near, 421
 Yew-tree, spiral cells in wood of, 615
 Yew-trees, notes on, 1131
 Yorkshire, botanical ramble in, 1065, 1089, 1126 : moors, three days on, 101

ALPHABETICAL LIST OF ILLUSTRATIONS.

- Adonis**, seeds of three species of, 856
Baobab tree, 433
 flowers of, 436
 fruit of, 437
Bartramia calcarea, 1033
Carex, fruit of three species, 919, 920
Cerastium latifolium, 497, 500
Cuscuta Trifolii, section of, 753
Embryogeny.
 Berberis vulgaris, ovule &c. 625
 Juniperus communis, 625, 732
 Myosotis palustris, 850
 Nuphar lutea, 851
 Nymphaea alba, 851
 Pinus sylvestris, 625
 Statice Armeria, 657
 Tropæolum majus, 882, 883
Equisetum.
 arvense, 727
 fluvatile (limosum, Sm.), 689
 hyemale, 273
 details, 277
 Mackaii, 305
 details, 308
 palustre, 529
 var. nudum, 628
 var. polystachion, 593
 sylvaticum, 694, 696
 Telmateia (fluvatile, Sm.), 721, 724
 umbrosum (Drummondii, Hook.),
 697
 variegatum, 337
 details, 339
Fir-wood, section of, 615
Fucus Mackaii, 465
Fumaria, flowers of several species, 857
Hypnum filicinum, accessory leaves, 460
Isoetes lacustris, 153
 details, 156, 157
Lastræa.
 multiflora, 952
 recurva, 953
Lomaria spicant, 945
Lycopodium.
 alpinum, 33
 annotinum, 17
 clavatum, 1
 inundatum, 49
 selaginoides, 65
 Selago, 81
 details, 84, 86
Monotropa Hypopitys, 97, 329, 322
 Plants parasitical on its roots, 344,
 345, 348
Orchis, flowers of three species, 789
Orobanche, flowers of eight species, 832
Pilularia globulifera, 209
 details, 156, 157
Polytrichum juniperinum, 1033
Statice rariflora, 561
Trichomanes speciosum, 957
 details, 959
Woodsia alpina, 949
Yew-tree in Bowden church-yard, 1131

ALPHABETICAL LIST OF THE AUTHORS WHOSE WORKS ARE REVIEWED.

	PAGE.
ANONYMOUS. A Series of Botanical Labels for the Herbarium, adapted to the respective Floras of Smith, Hooker, Lindley and Macreight. London: Longmans; Pamplin. Faversham: Ratcliffe. 8vo. 1841. - -	110
ANONYMOUS. Collectanea for a Flora of Moray: or, a List of Phænogamous Plants and Ferns hitherto found within the Province. Elgin: printed by Alex. Russell, Courant Office. 1839. - - -	124
ANONYMOUS. Van Voorst's Naturalists' Pocket Almanack for 1844. 32mo. - -	835
ANONYMOUS. The London Catalogue of British Plants. London: Pamplin. 1844. - - - - -	932
BABINGTON. Manual of British Botany, containing the Flowering Plants and Ferns, arranged according to the Natural Orders. By Charles C. Babington, M.A., F.L.S., G.S. &c. &c. London: Van Voorst. 12mo. 1843. -	636
BACKHOUSE. Narrative of a Visit to the Australian Colonies. By James Backhouse. London: Hamilton, Adams & Co. 8vo. 1843. 549, 570, 606, 664, 737	
BALFOUR and Others. A Catalogue of British Plants. Part I. Containing the Flowering Plants and Ferns. By J. H. Balfour, M.D., Regius Professor of Botany, Glasgow; Charles C. Babington, M.A. Cantab., F.L.S.; and W. H. Campbell, Secretary to the Botanical Society. London: Baillière. Edinburgh: Machlachlan. 8vo. 1841. - - -	109
BERWICKSHIRE NATURALISTS' CLUB. There is no title to this little pamphlet, which records the Proceedings of the Club. - - -	515
BOTANICAL SOCIETY. Transactions of the Botanical Society. Vol. I. Parts 1 and 2. Edinburgh: Machlachlan. London: Baillière. 1841. 248, 311, 348, 391	
HARVEY. A Manual of British Algæ: containing Generic and Specific Descriptions of all the known British Species of Sea-Weeds, and of Confervæ, both Marine and Fresh-water. By the Hon. William Henry Harvey. London: Van Voorst. 8vo. 1841. - - - - -	122
HOOKE. The London Journal of Botany, being a new series of the Journal of Botany. By Sir W. J. Hooker. London: Baillière. - - -	164, 927, 1022
HOOKE. The British Flora: in Two Volumes. Vol. I., containing the Phænogamous or Flowering Plants and the Ferns. By Sir William Jackson Hooker, K.H., LL.D., F.A.S. & L.S., &c. &c. The Fifth Edition. London: Longmans, 1842. 8vo. - - - - -	635
LEES. The Botanical Looker-out among the Wild Flowers of the Fields, Woods and Mountains of England and Wales. By Edwin Lees, F.L.S. &c. London: Tilt & Bogue. Cheltenham: Davies. 1840. - - -	420
LEES. The Botany of the Malvern Hills, in the Counties of Worcester, Hereford and Gloucester; with the precise Stations of the Rarer Plants, and Introductory Observations on the General Features, Geology and Natural History of the District. By Edwin Lees, F.L.S. &c. &c. London: Tilt and Bogue. Malvern: Lamb. 1843. - - - - -	705

	PAGE.
LEIGHTON. A Flora of Shropshire. By W. A. Leighton, B.A., F.B.S.E. London: Van Voorst. 1841.	11, 22
LINNEAN SOCIETY. Transactions of the Linnean Society of London. Various dates.	55, 71, 241, 488
MICROSCOPICAL SOCIETY. Transactions of the Microscopical Society of London.	
Vol. I. Part 1. London: Van Voorst. 1842.	322
NEWMAN. A History of British Ferns and Allied Genera. By Edward Newman, F.L.S., B.S. London: Van Voorst. 1844.	945
PRESL. Hymenophyllaceæ. Eine Botanische Abhandlung, von Prof. Dr. Karl B. Presl. Prag. 1842.	1044, 1100, 1116
SELBY. A History of British Forest Trees, Indigenous and Introduced. By Prideaux John Selby, F.R.S.E., F.L.S. London: Van Voorst. 8vo. 44, 72, 228.	
SOWERBY. Supplement to the English Botany. No. 54. London: Longmans, Sherwood, Sowerby.	27
SOWERBY. An Illustrated Catalogue of British Plants, arranged according to the Natural Orders; in which the two Systems are combined. By C. E. Sowerby, A.L.S. Part. 1, 12mo. London: Sowerby, 3, Mead Place, Lambeth; Longman; Simpkin. 1841.	110
WARD. On the Growth of Plants in Closely Glazed Cases. By N. B. Ward, F.L.S. London: Van Voorst. 8vo. 1842.	221
WATERTON. Essays on Natural History, chiefly Ornithology. By Charles Waterton, Esq., Author of Wanderings in South America. Second Series. London: Longman. 1844.	1070
WATSON. The Geographical Distribution of British Plants. By Hewett Cottrell Watson. Third Edition. Part 1. London: printed for the author. 1843. 8vo.	635

REPORTS of the Proceedings of the Scientific Societies will be found in almost every Number.

ADVERTISEMENT.

THE PHYTOLOGIST appears in Monthly Numbers, price 1s. each: and in order that Subscribers may receive it on the day of publication, it is invariably ready for sale to the trade three days previous to the 1st of the month named on the Wrapper; any irregularity, therefore, in supplying this Magazine, must arise from inattention on the part of provincial booksellers.

